SEP 4 1925

Medical Lib.

CLINICAL MEDICINE

A MONTHLY POSTGRADUATE COURSE

September, 1925 Vol. 32, No. 9

LEADING ARTICLES

Clinical Value of Artificial Light in Otitis Media
By Abraham R. Hollender, M.D., and Maurice H. Cottle, M.D., Chicago

Modern Urological Diagnosis and Treatment
By Edward William White, M.D., F.A.C.S., and C. Otis Ritch, M.D., B.S., Chicago

Some General Aspects of Tuberculous Infections
By J. A. Dungan, M.D., Greeley, Colo.

The Battle Creek Sanitarium
By George B. Lake, M.D., Chicago

Ethical Advertising
By J. A. Butler, Tulsa, Okla.

The Development of Intravenous Therapy
By David E. Ushkow, New York City

The Management of the Puerperium
By Fred D. Hollenbeck, M.D., Chicago

IN DISEASES OF THE SCALP AND SKIN

EURESOL

(acetoresorcin)

Euresol is a stimulant and antiseptic to the scalp, allays itching and prevents dandruff and loss of hair.

For literature and samples apply to

E. BILHUBER, Inc., 25 West Broadway, New York, N. Y.

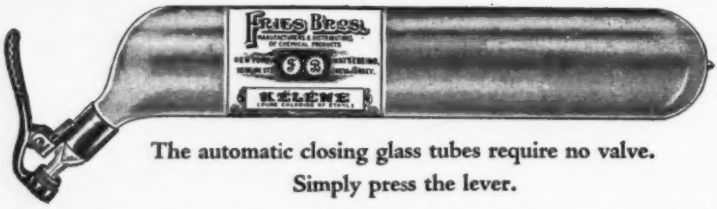
KELENE

Pure Ethyl Chloride

For Local and General ANESTHESIA

10 Gm.
30 Gm.
60 Gm.

Automatic Closing Tubes



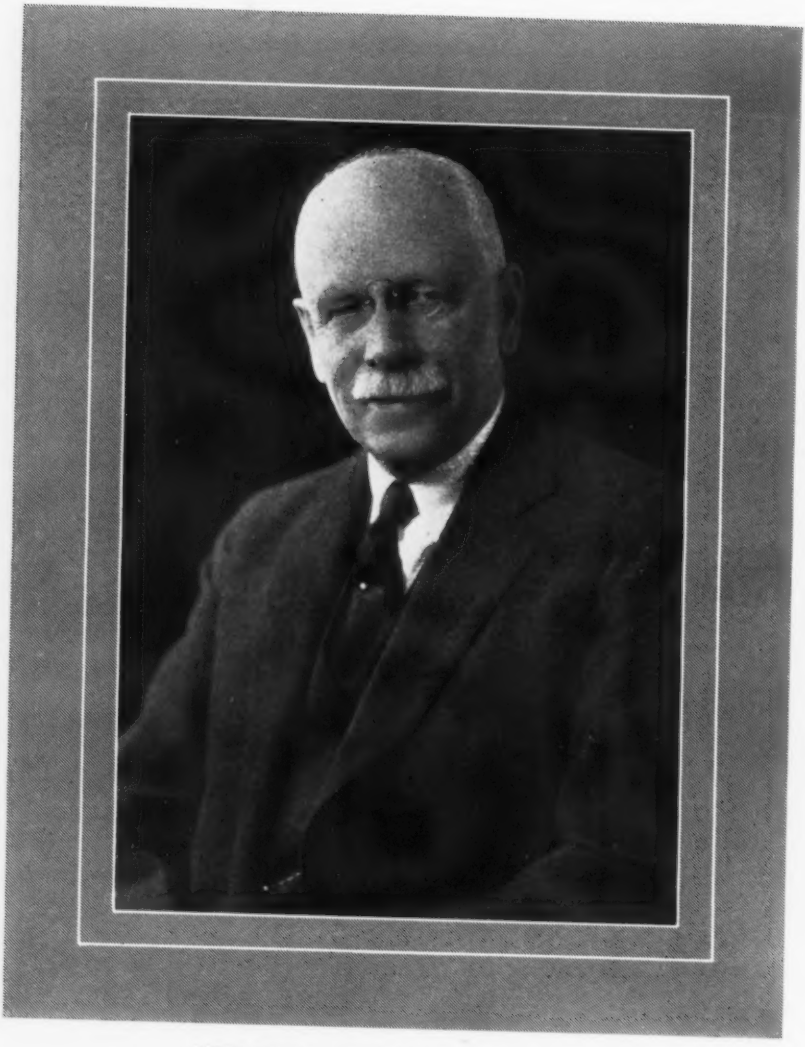
Also
3 Cc.
5 Cc.

Hermetically Sealed Tubes

The automatic closing glass tubes require no valve.
Simply press the lever.

Sole distributors for the United States and Canada: MERCK & CO., New York St. Louis Montreal

UNIV. OF MICH.



WENDELL C. PHILLIPS, M. D.

Clinical Medicine

A Monthly Postgraduate Course

Vol. 32, No. 9 September, 1925

Wendell C. Phillips, M.D., F.A.C.S.

President-Elect of the American Medical Association

WENDELL CHRISTOPHER PHILLIPS was born in Hammond, New York, on the ninth of June, 1857, the son of Samuel and Mary (Merrill) Phillips.

His early education was in the public schools, and from 1876 to 1879 he attended the Normal School at Potsdam, New York. In 1882 he was granted the degree of Doctor of Medicine by the University Medical College of New York University.

He married Lucia M. Taggart, of New York and Newport.

Soon after his graduation, Dr. Phillips decided to specialize in diseases of the ear, nose and throat, and became, in due time, consulting aural surgeon to the New York Postgraduate and Flushing hospitals and aural surgeon to the Manhattan Eye and Ear Hospital.

The doctor is a member of the American and of the New York Otolaryngological Societies, and was president of the American Laryngological, Rhinological and Otological Society in 1907. He is also a member of the New York Academy of Medicine and was president of the New York County Medical Society in 1904 and of the Medical Society of the State of New York in 1912. In addition to these, he is a Fellow of the American College of Surgeons.

Dr. Phillips has made considerable contributions to the literature of his specialty, including a book, "Diseases of the Ear, Nose and Throat, Medical and Surgical", which is used as a text in several schools. He has also showed his interest in the welfare of the socially handicapped by being instrumental in the organization of the American Federation of Organizations for the Hard of Hearing, which has done much to promote the study of lip reading and has made the hard lot of the deaf easier.

The doctor has given many years to the service of organized medicine, having been for seven years a trustee of the American Medical Association, part of which time he was chairman of the board, and for several years a member of the Executive Committee. His election to the presidency of the organization is a well-earned recognition of the notable services he has rendered.

Dr. Phillips is a man of much personal charm, tact and dignity of bearing, which makes him an acceptable presiding officer at any gathering, and his high ideals and years of devotion to medical progress give large promise of advancement for the great society over which he has been elected to preside.

PRESCRIBING OR DISPENSING

The question of whether a physician should prescribe or dispense is a very old one and has been argued, pro and con, many, many times, but, even so, it may not be amiss to recapitulate some of the principal arguments on both sides and review some of the fundamental factors underlying the question.

In the first place, there are very few who are *exclusive* prescribers or dispensers. The man who dispenses most of his drugs will occasionally write a prescription; and the man who prescribes, as a rule, will sometimes dispense some particular preparation.

On this question the field of medical practice divides itself fairly definitely into the city physicians, who have offices in the down-town office buildings, and many of whom are specialists, and the general practitioners in suburban or rural districts.

It is rarely possible for the city specialist to dispense, if he desired to do so, because the rents are so high and office hours so short that he could scarcely afford the space to carry a stock of drugs nor the time to put up his own prescriptions.

On the other hand, the man who is doing a family practice in the country, far from drug stores, must be ready to leave with his patients such remedies as are most urgently needed, for, otherwise, hours of critically valuable time might be lost in procuring the medicine prescribed from a pharmacist.

Granted that a physician has the space to carry a drug stock and the time to handle that work himself, what are the arguments for and against his acting as his own druggist?

In favor of dispensing:—

1.—He knows what his patient is getting.

2.—He knows how much medicine is being taken. There can be no "refills" without his knowledge.

3.—He can keep particularly successful formulas to himself.

4.—Many patients still feel that they want something *tangible* for their money. This he gives them in the form of medicine.

5.—In the case of poor patients who want to pay what they can, the extra expense of having a prescription filled may be an actual hardship.

6.—From his own standpoint, he is assured that, when his patient needs more medicine, he must return to the doctor's office, thus permitting the collection of another fee—and *also* a new survey of the patient's condition, which may require a change of treatment.

It also gives the doctor a chance to demand a cash payment for a commodity in hand, and frequently get it more readily than he could for mere advice.

Against dispensing:—

1.—There is a tendency for busy practitioners to rely on ready-made formulas—"nerve pills", "tonsillitis tablets", "digestive elixirs", etc.—and forget their detailed knowledge of materia medica.

2.—If the doctor avoids this danger by actually compounding his own prescriptions, he has not the technical knowledge nor the facilities possessed by a good pharmacist for preparing an accurate and elegant compound.

3.—Patients tend to look upon a dispensing physician, more or less, as a purveyor of drugs, rather than as an expert adviser in their physical affairs, and to feel that they are paying for medicine rather than for professional advice.

4.—If a physician carries a really adequate supply of medicines (particularly biologicals, endocrine products and such things as require especially careful handling) to meet the needs of his patients, the expense of procuring and keeping up such a stock is very heavy.

5.—If he fails to carry a large stock of drugs, he will frequently find himself lacking the particular remedy which he desired to give a certain patient and will then be almost, if not quite, as likely as the druggist to give him "something just as good."

Here are the arguments, on both sides, as we see them. Study them carefully and weigh their merits. If further arguments on either side occur to you, let us have your comments. We would be delighted to publish two or three brief and pertinent articles from both prescribers and dispensers defending their position.

Our suggestions in the matter would be:

To the city specialist or practitioner; select, after careful study, one or more thoroughly competent pharmacists who can be easily reached by your patients and will carry in stock the remedies you commonly prescribe and send your prescriptions to them, dispensing rarely and only in exceptional circumstances.

To the rural practitioner; stock your medicine-case with a dozen or two standard, reliable, emergency remedies, in portable

and durable form (dry preparations are always preferable to liquids for this purpose; while single drugs and active principles are always preferable to ready-made compounds and crude preparations, both as regards portability and accuracy) so as to be ready to meet the conditions which arise at the bedside and save valuable time.

In the office keep a supply of such drugs as you most commonly use and equip yourself to compound your own prescriptions accurately and rapidly. This equipment requires a knowledge of pharmacology as well as a supply of apparatus.

Establish the friendliest relations with your druggist and encourage him to become a competent pharmacist; then send him your prescriptions for complicated and bulky compounds, medicines which are not needed in a hurry or are rarely prescribed, and delicate biologicals, in order that he may feel that you are cooperating with him.

Your first duty is to do what will be best for your patient; your second is to protect your family and yourself; your third is to enter into such friendly and helpful relations with your confreres, your druggist and the community in general that you will be a thoroughly useful and valuable citizen.

Be courteous to all, but intimate with few, and let those few be well tried before you give them your confidence.—George Washington.

SYNTHETIC INSULIN

The New York *Times*, for July 20, contains a very interesting dispatch from Baltimore commenting upon the remarkable work which is being done by Drs. John J. Abel and E. M. R. Gelling, of Johns Hopkins University, in the study of the chemical composition of insulin.

These investigators have been able to separate from commercial insulin four fractions, only one of which is active; but this active fraction shows, when compared with the original insulin, a potency of 40 or more to 12: i.e., 1 mg. of insulin gives 12 units, while the same quantity of this active fraction gives 40 or more units.

This substance can readily be prepared in quantity and used as the starting point for further investigations, directed to obtaining the active constituents of insulin in pure form and free from all the inert substances which it now contains.

It will be remembered that Dr. Abel was the man who first prepared adrenalin in pure form from the suprarenal glands, and this argues well for his prospects of success in this new enterprise.

When once the pure substance which burns the sugar is isolated from insulin, it requires no wild or reckless stretch of the imagination to see the remarkably expert and thoughtful chemists who are working all over the country making it in large quantities at low cost and of high quality, so that many who are now denied its use on account of expense will be able to realize its enormous benefits.

Sometimes we are inclined to look upon the laboratory workers as being less important in the care of the sick than the clinicians, but where would we bedside doctors be if the investigators did not give us materials with which to work?

Truly, the progress of medical science is one of the world's most startling and fascinating romances.

A journey of a thousand miles begins with one step.—Chinese Proverb.

BELLADONNA

Belladonna is obtained from the root and leaves of a plant which is a native of Europe but has been cultivated in this country. The botanists call it *Atropa belladonna*, but most of us know it better under the name of "deadly nightshade."

While belladonna is used in the form of fluid extracts of the root and leaves, tincture of the leaves, the liniment, ointment and the well-known belladonna plaster, the greatest interest and importance attaches to its principal alkaloid, atropine.

Atropine is a white, crystalline substance, with a bitter, acrid, burning taste (do not taste it except in very dilute solutions!) and almost wholly insoluble in water. For this last reason the sulphate of atropine, which is very soluble, is the salt most commonly used. This salt is absorbed with the utmost promptness and rapidity by the mucous membranes of the digestive canal and by the subcutaneous tissues, and eliminated with most equal rapidity by the kidneys and bowels, so that it is completely gotten rid of within 2 or 3 hours. This is one of the reasons why death from poisonous doses is so rare. It is absorbed slowly but surely through the skin.

Belladonna acts upon the nervous system by lessening reflex action, but as a powerful cerebral excitant (in large doses it

produces delirium or even acute mania); on the circulation by depressing the vagus and stimulating the accelerator nerves, thus quickening the pulse; upon all secretory organs, except the kidneys, by depressing the peripheral nerve endings to the secretory cells and thus markedly decreasing the secretions; upon the respiration by stimulating the respiratory center (though, for this purpose, it is inferior to caffeine and strychnine); upon all unstriped muscle as an antispasmodic; upon the intestines by depressing the inhibitory fibers of the splanchnic nerves, and thus increasing peristalsis; upon the vascular system by contracting the great vessels and relaxing the capillaries, thus equalizing the circulation; and upon the eye by producing mydriasis and loss of accommodation.

The wide field of activity of this drug points to the fact that it should have very extensive therapeutic usefulness, and such, indeed is the case. It is one of the most important and valuable medicinal substances in our armamentarium and will richly repay any physician who will spend the necessary time in study to be able to utilize its enormous remedial possibilities.

The most dramatic results of the use of atropine are probably seen when it is used in shock and collapse following injury or operation, or occurring in the course of such diseases as pneumonia, typhoid and typhus. The feeble pulse and respiration are strengthened; the palid and clammy skin becomes dry and rosy; and the patient, who appeared to be moribund, takes on a new lease of life. Hare says that, in all cases of pneumonia or typhoid, atropine should be kept in the house and instructions given for its prompt and bold administration should symptoms of collapse appear.

As an antispasmodic, atropine or belladonna has an immense field of usefulness. Rheumatic torticollis and other muscular cramps, spasmodic dysmenorrhea, simple and lead colic, asthma, hiccough, whooping cough, laryngismus stridulus, spastic constipation, spasm of the sphincter and muscle, from fissure or other cause, and many other conditions of like sort which will suggest themselves to the studious physician, generally yield promptly when this drug is given in sufficient dosage.

In cases of asthma, the use of atropine combined with morphine, which was the classical palliative a few years ago, has been largely replaced by hypodermic injections of 5 to 7 drops of a 1-1000 solution of adrenalin or epinephrin; but if, for any reason, these newer drugs are not available in an emergency, the old standby should not be forgotten.

It is only comparatively recently that we have had a scientific basis for differentiating between atonic and spastic constipation. The drugs, such as cascara and aloes, which are useful in the former class of cases, serve only to aggravate the latter. We must learn to diagnose our cases of constipation with great care and, when we find a spastic case, the intelligent administration of atropine or belladonna will prove almost specific, because this drug not only relaxes the muscular spasm but also increases peristalsis by depressing the inhibitory nerves.

In spasmodic dysmenorrhea, intestinal colic, hiccough and the like, the benzyl compounds (benzyl benzoate, benzyl fumarate, etc.) have produced some excellent results, but we do not always have these at hand and it is somewhat doubtful if they act any better than atropine, which should always be found in the medicine case of every physician.

In the treatment of urinary incontinence in children, belladonna holds a high place, because the underlying cause, in many cases, is spasm of the vesical outlet, and because children generally bear the drug well.

Its power to arrest secretion is utilized to diminish sweating in phthisis and other conditions, including hyperidrosis and bromidrosis and its use for this purpose prior to operation; to check the profuse secretions (as well as equalize the circulation) in the early stages of coryza and other acute upper respiratory inflammations; to dry up the milk when this is necessary (here it may be given internally or applied locally, as an ointment, or both); in cases of serous diarrhea; and for various other purposes.

It may be applied topically with benefit in cases of cervical leucorrhea, rigid os uteri or other pelvic conditions characterized by hypersecretion or spasticity.

Belladonna or, preferably, atropine, is specific in the treatment of poisoning by opium (though here Hare considers caffeine and strychnine to be preferable), physostigmine, jaborandi, and mushrooms, particularly the *amanita*; and is of the utmost service in poisoning by aconite, antimony and hydrocyanic acid, because of its power to stimulate the vasomotor and respiratory systems and maintain the body heat.

In ophthmological work it has been widely used as a cycloplegic, (though for this purpose it is now largely replaced by homatropine), and for its sedative and mydriatic influence in cases of iritis, cyclitis, keratitis and corneal ulcers. It should be remembered that atropine markedly increases intraocular tension and should *not* be used in cases of glaucoma.

The dose of atropine sulphate is 1/250 to 1/40 grain (0.2 to 1.5 milligrammes), by mouth or hypodermically. The tincture of belladonna leaves is given in doses of 5 to 40 minims (0.3 to 2.6 Cc.) The liniment, ointment and plaster are for local use only.

It should be remembered that some persons show a marked idiosyncrasy to this drug, so that doses of 1/1000 grain of atropine produce marked symptoms, and, except in grave emergency, requiring the prompt use of heroic measures, the dosage should be carefully increased up to the point of therapeutic or physiological effect.

The careful and exhaustive study of this inestimably valuable drug is earnestly recommended to every practicing physician.

Any man is a success who is furnishing his family enough to eat, enough to wear, plenty of shelter, and who is putting away enough to guarantee a continuance of these things in the future.

But, any man who does this much and no more is a failure. Think that out for yourself!

—*Med. Pocket Quarterly.*

TAKE A WALK

It requires a considerable amount of more or less expensive apparatus, a good deal of time and the conjunction of favorable circumstances if one is to play golf or tennis, ride horseback, canoe or indulge in various other delightful and popular sports; but all the apparatus one needs for walking is a pair of fairly serviceable feet and legs. You can walk in anything or nothing (if the police don't catch you), and at any time or place, alone or with companions. It is the great democratic, universal sport, exercise and recreation.

Although the country is the proper place to walk, if you are so circumstanced that you must walk in the city or not at all, go out into the alleys and back streets, in your oldest clothes and discover a new world.

Many people think that they must go to Europe, Egypt or Yellowstone Park to find fresh scenes and romantic adventure, but, if you have the high heart and the joyous vision for it, you can find all the variety, romance and excitement that anyone needs within five miles of your own doorstep.

However, do not expect to find any exhilaration from walking on paved streets or springy turf, by day or by night, if you go out carrying your office or your house strapped upon your back. Do not expect to see the wonders of God's glorious world while you are wearing the myopic spectacles which you use for studying your ledgers or the market reports in the newspapers. Strip yourself to your naked soul and your eager heart and forget, for the time being, that there is any occupation in the world but just to *walk*.

In these days of busses and interurban cars—to say nothing of the ubiquitous "flivver"—the country is within the reach of almost every one, and it is there that the true inwardness of the philosophy and solace and exuberance of walking are to be found.

Do not start out to *go somewhere*, along the roads, with an elaborate lunch, in a lacquered box, to hamper your movements. Cram an apple, a piece of cheese and a hunch of bread into your pocket, climb the first fence you see and *just walk*. Dig up a turnip or a potato in some field, wipe it on your pants and eat it "as is". Too few know the joy and satisfaction to be found in a raw potato, munched under a blue and cloud-flecked summer sky, with birds in place of a jazz orchestra, and a drink from some farmer's pump instead of from a silver hip-flask.

If you can get lost in the woods, so much the better. To be lost in a strange country is one of the most exciting experiences most of us ever encounter.

Let some brook or your own musings direct your steps. Stop to *see* the things you usually miss—the moss on the trees, the flowers of the grasses, the spider in his web and the tumble-bug pushing his ridiculous marble behind him.

Pause to listen, whether or no you can recognize the various bird calls all about you and hear the song of the gnat and the bee.

If you can learn how to do it, you can take a very profitable vacation in half a day and a delightful and refreshing rest in half an hour. It is largely a matter of how much control you have over your mind and whether or not you have permitted yourself to slip into a state of spiritual ankylosis.

If you will limber up your knees and ankles, it will help to limber up your heart.

If you can forget your worries and jealousies and ambitions and heart-burnings for a little while, perhaps you can remember the joyous rapture of your youth, the thrill of solitude and the brooding, satisfying peace of the evening sky.

Take a Walk.

Look for a thing till you find it and you'll not lose your labor.—Chinese Proverb.

TAKING A PERSONAL INVENTORY

The last day of every month, every Army commissary in the country closes its doors and devotes the day to finding out exactly what they have on the shelves. The big department stores in the cities do not shut up shop, but they take an inventory at least once or twice a year. No business which does not have regular, periodic stock-takings could negotiate a loan from any well-conducted and self-respecting bank. Every one of you has to take inventory of you narcotics, periodically, in order to comply with the Harrison law.

In view of the importance of these check-ups, did you ever stop long enough to take a *personal* inventory?

Sometime in your life something occurred to make you think you should be a Doctor of Medicine. What was it? It might be worth-while going back over the records of your memory to find out. Before you could start on the study of your profession, you had to take stock of your credentials to see if they were adequate. Did you also check up on your tastes and talents and aptitudes and adaptabilities at that time?

At any rate, whether you did these things or not, here you are. How do you like it? Are you as successful—professionally, financially, socially—as a physician, a citizen, a husband and father and as a *human being*—as you hoped you would be? If so—or if not—do you know the reason? You ought to, so that if you are on the right track you can *stay* on, or, if off the track, you can *get* on.

The only way you can find out these things is to take inventory. See what you have in the way of "dead stock"—prejudices, false judgments, laziness and such-like—and *get rid of it*. See if you have not talents and abilities which are now lying dormant and *put them to work*. Make everything *pay*—in happiness, usefulness or cash—and whatever will not pay, *eliminate*.

One of the simplest and easiest matters of which you can take stock is your physical condition. You ought to know, by this time, how much stamina and capacity for work you have inherited or acquired, but do you? You ought to know exactly what you score on limitations as well as on capabilities and make use of that knowledge every day.

If you have checked up in this way, are you acting upon the information you have acquired? Even a severe physical handicap need not limit your average rating if you make the best possible use of what remains to you. We knew a doctor who lost his right arm. He did not repine because he could no longer do surgery and obstetrics but developed his other powers and faculties, so that he was a successful physician and a valued member of his community.

How much sleep do you need? How much food? How much recreation? How much energy can you spend in a day and keep fit? If you haven't found the *exact* answer to these questions, you should do so *at once* and then regulate your life accordingly.

The last question asked is of particular importance. "N. S. F." applies to your health balance as well as to your bank balance. You may put in 18 hours of work today; you may work a full 7 days this week; you may make a spurt and see 40 patients in one day, but—will your balance of energy stand the strain? If you are expecting to hold out for the *long pull*, you must know just how much you can do, and do it, and *then stop*.

Success in your profession and in the larger business of living will be yours only to the degree that you put forth sincere, intelligent, consistent effort, up to the limit of your capacity, physical and mental, and then—*strive to enlarge that capacity*.

Know yourself! Keep fit!

DR. A. J. OCHSNER

This is just a line of editorial tribute to the memory and large professional achievements of Dr. A. J. Ochsner, of Chicago, whose death occurred on July 24, 1925, and a sketch of whose life will be found on page 659 of this issue.

Leading Articles

Clinical Value of Artificial Light in Otitis Media*

By ABRAHAM R. HOLLENDER, M.D., and MAURICE H. COTTLE, M.D., Chicago

OTITIS media, occurring independently or as a complication of an acute contagious or infections disease, still presents a serious otologic problem. Various abortive and curative methods are too well known to all otologists to require discussion. Our purpose is to emphasize the value of *light* as an important therapeutic adjunct in otology, especially in the acute and chronic purulent types of otitis media. While it was primarily intended to base this report solely on our own investigations and clinical experience, the views of other workers have been quoted because the sources of information on light therapy, as now employed and advocated, are indeed very limited.

General Considerations

It is well first to consider the apparatus and the principles involved in their proper application. The radiant heat lamp is principally employed in *acute*, suppurative otitis media, although its use is also advocated in the chronic type of the disease. There is a variety of radiant heat lamps on the market. The candle power or wattage of the bulb, and the size, shape and construction of the reflectors differ materially. We prefer a lamp with a 1000 to 1500 watt bulb of uncolored glass, so arranged within a suitable reflector as to transmit the rays vertically upon the object at any desired distance. Obviously, as it is desired to obtain vertical rays, the shape and size of the reflector must be of correct construction, otherwise the rays will be of little therapeutic value. These points we have aimed to show by illustrations (Fig. 1). The reflecting surface is best made of white porcelain of parabolic shape (Fig. 2), so that there will be no undue absorption of heat and improper reflection of the light rays.

Much absorption of heat takes place if the reflector is small and closed off at the bottom in a way to interfere with proper ventilation and cooling. The most desirable reflector for the purpose of irradiating an ear is one which is large enough to house a high wattage lamp and of a shape to reflect, as vertically as possible, the light rays on the part to be irradiated. It is preferable to expose a larger area of the body than is affected. This is best accomplished by a reflector with a wide base.

The Spectrum

Radiant energy from the deep therapy lamp includes an appreciable portion of the infra-red rays, together with the energy of the entire luminous spectrum (Fig. 3). These rays, suitably measured in millionths of millimeters ($\mu\mu$), because of extremely short wave lengths and infinitely high frequencies, are highly penetrative through the human system. Clerk Maxwell has demonstrated that their properties are strictly electromagnetic.

For convenience, the spectrum is divided into three parts; an invisible portion beyond the red, with wave lengths increasing from 700 $\mu\mu$ to those of vast proportions, known as the infra-red region; a visible portion called light which has varying wave lengths from 700 to 390 $\mu\mu$; and an invisible portion, the nonluminous spectrum, with a decreasing wave length from 390 $\mu\mu$ to zero, which is called the ultraviolet region and which includes the socalled unexplored region of Milliken, the x-ray field and the field of radium frequencies.

The invisible infra-red rays have great penetrating power but are demonstrable only as heat. The powers of penetration of the luminous rays gradually recede in direct proportion as one nears the ultraviolet region, while the absorptive properties increase as one approaches the shorter wave lengths in the ultraviolet field. Thence oc-

*Read by invitation at the 38th annual meeting of the O. O. and L. Society at New York, June 21, 1925.

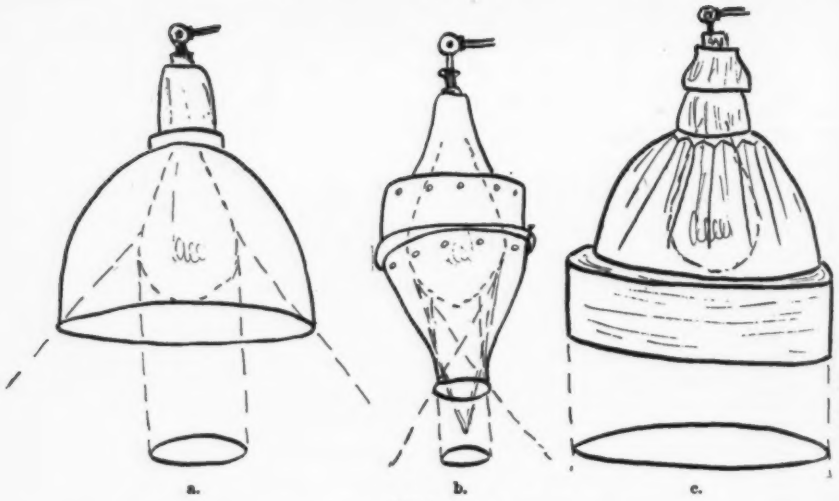


Fig. 1.

a. Great dispersion of light rays; area of vertical rays greater than in lamp with base opening of small diameter.

b. Showing hot spot and dispersion of rays; also minimum amount of vertical rays emitted through base opening of small diameter.

c. Maximum amount of vertical rays with minimum dispersion due to fluted bowl and skirt and absence of diaphragm.

curs an apparently unexplained paradox of dynamics, whereby, as we approach the x-ray region and that of the gamma rays, instead of a corresponding increase of absorption, we again note increased penetrating properties of these energies.

In dealing with radiant energy, one must differentiate properties of penetration from properties of absorption. As has been indicated, the longer wave lengths, such as are given off by the deep therapy lamp, carry mainly qualities of penetration, and these have a profound electrochemical effect upon the nuclear chromatic and cellular vitality. Absorption of radiant energy follows penetration when dealing with the longer wave lengths. When this energy is absorbed into living tissue, it is converted into heat or calories—and this brings about an activation of cellular metabolism, not only of the irradiated part but also distally, through vasomotor changes that always follow hyperemia.

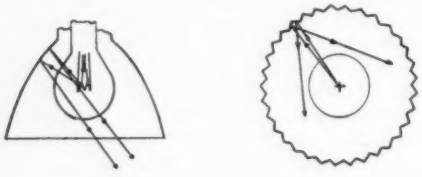


Fig 2 Fluted surface directs light rays around lamp evenly over surface.

Therapeutic Action of Radiant Heat Rays

All the benefits of an active hyperemia, such as vigorous drainage of the affected part, relief of stasis, which is the cause of cellular death, and the disposal of morbid waste products, e. g., toxins and endotoxins, follow radiant energy. Thus, local heat from radiant light is decongestive locally,

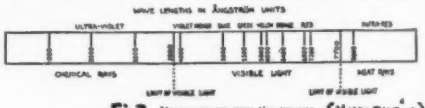


Fig 3 Diagram of the Spectrum. (Humphris)

or generally, because it overcomes stasis. Thermo-penetration has a bactericidal effect due to the fact that certain bacteria cannot live in all temperatures. Increased oxidation always follows increased metabolism. Hyperemia of the skin, with a concomitant depletion of the internal organs, produces a lowering of the blood pressure, while the respiration rate diminishes and the respiratory exchange increases, favoring the removal of volatile waste products and carbon dioxide.

It is quite obvious that, to some extent, at least, the action of light-heat rays depends upon the method of application and the parts irradiated. In otitis media it is not necessary to focus or concentrate the

rays, yet it is essential to include a larger area than is involved pathologically. As has been mentioned before, the lamp should be so directed that the rays are as vertical as possible (Fig. 4).

Fig. 4.
Proper direction of radiant heat lamp. Method of treating an acute otitis media.

The point of greatest heat from the application of radiant light and heat is the proximal surface. The facility with which the application is made, by means of a properly constructed incandescent lamp, makes the method a very desirable one. It combines convective and conversive heat, and there is definite proof that the rays penetrate a fair distance, producing an effect which must be attributed not only to the heat but also to the therapeutic properties which these luminous rays possess. Strebel, long ago, demonstrated that the effects produced are due to the light rays, the associated heat rays, or to both.

Colored or Transparent Glass Globes

Furrell believes that there does not appear any reason or physical grounds for expecting any marked difference in action between the radiant energy derived from the rays of the sun and the radiant energy obtained from the incandescent filaments of electric lamps. With this contention we do not take issue. We do, however, differ with Furrell in his view that the color of the incandescent lamps in no way affects the effectiveness of the treatment.

Heat by penetration is quite different from heat by convection. Radiant energy is best transmitted through glass that is clearly transparent. Ordinarily, glass will transmit only the luminous rays of the spectrum, leaving out the invisible rays of the infra-red and ultraviolet regions. This, of course, is most desirable in certain conditions where the maximum effect of deep therapy light is wanted. However, in the application of ultraviolet light, uncolored glass is an undesirable medium, because it is highly opaque to the rays of short wave lengths, especially the actinic rays, and for this purpose quartz crystal serves best.

Colored glass is inefficient for radiant heat lamps because it is contrary to the principles involved in the physics of optics. Colored, screened glass transmits wavelengths of that color only, the remainder of the energy is absorbed, heating the glass itself and giving off convective heat. On the other hand, transparent glass definitely transmits all the rays of the luminous spectrum upon the irradiated part, permitting penetration, absorption and electrochemical changes.

Action of Light-Heat Rays on Symptoms of Otitis Media

Gerstenberger and Dodge quote Oeken, who treated 258 cases; 50 cases of acute simple otitis media, 5 cases of perforative otitis media with mastoid involvement, 2 cases of simple mastoid opening, 50 cases of acute otitis media with exudate formation, 1 case of othematoma, and 100 cases of external auditory canal furuncles. Oeken used the heat rays in acute otitis media with exudate formation, by having the patient take two daily sittings of one hour each. The earache was lessened and in most cases the drum membrane cleared up in two or three days, the exudate was absorbed and the bulging of the membrane disappeared, paracentesis was avoided and the infection controlled.

Gerstenberger and Dodge have employed the same treatment in chronic suppurative otitis media and as an abortive measure early in scarlet fever and measles showing normal drum membranes, to see whether the development of otitis media in these diseases could be lessened. The observations were very favorable.

Our experience with radiant energy in various types of otitis media extends to over one hundred cases. We have, in most instances, limited its use to the acute middle-ear disease, with or without suppuration. Relief of the otalgia is prompt. The heat itself undoubtedly would afford this

relief, because of its sedative and decongestive action upon the nerve endings; yet, when one observes how strikingly prompt this is, one is apt to believe that the penetration of the light rays is greater than generally believed, and that the rays have much to do with the relief of the pain.

By the action of the light rays on the affected structure and on adjacent structures, the inflammatory changes are arrested, thus limiting the infective process and, in many instances, preventing complications, the most important of which is mastoiditis. Defective hearing is also a very common complication which may occur even though the infection itself has been cleaned up.

Technic

Proper technic is essential to success with this method. Too much stress cannot be laid on the value of early treatment, because it is in the first stage of otitis media that we have the most favorable opportunities for arresting the disease and preserving the hearing.

The technic in detail is as follows: (1) The patient should recline on a low couch or table; (2) the lamp should be placed at about thirty inches from the head, with the patient lying on the opposite side from that of the ear to be treated; (3) the time of exposure should be gauged by the distance between the lamp and the part irradiated. A good rule to follow is to allow one minute for every inch of space. If the lamp is thirty inches from the ear, the part should be exposed for thirty minutes; (4) at least one treatment daily is necessary; (5) never place the lamp so close that the patient has to complain, even once during a treatment, that the heat is too great; (6) protect patient's eyes with colored glasses.

Case Reports

The following selected cases are briefly quoted from our records to illustrate the striking effects of radiant energy.

Case I. W. G., female, age 33, housewife, developed an acute otitis media after an attack of influenza. The ear drum was beefy red and the otalgia severe. The indications based on clinical examination and symptoms were for immediate paracentesis. The patient refused surgical interference and, after being told of the possible dangers of mastoid involvement, submitted to light therapy. The radiant heat lamp was applied twice daily for thirty-minute periods. The otalgia was relieved after the first irradiation and, after four days, the acute symptoms had subsided fairly well. In one week the ear drum returned to normal. No drugs were prescribed and no other local measures than the light were used until practically all the acute symptoms had disappeared. The ear drum did not rupture.

Case II. E. R., schoolboy, age 6, suddenly developed an acute otitis media after a common cold. The parents did not seek medical attention until the ear drum had ruptured spontaneously and the discharge was profuse. Mastoid tenderness and pain were marked. Roentgenograms showed definite mastoid involvement, as compared with the normal ear. The question of mastoid operation was debated but, finally, it was decided to enlarge the opening in the drum membrane and to apply radiant heat. The lamp was applied four times daily at a thirty-inch distance for half-hour periods. The canal was kept as clean as possible, by dry swabbing. In four days the discharge diminished, the mastoid tenderness lessened and the patient's general condition correspondingly improved. Within ten days the ear was practically dry. There was some impairment of hearing, which was subsequently treated by other methods.

Case III. R. E. W., male, age 4. Otitis media during course of scarlet fever. Discharge very profuse after spontaneous rupture of drum. Distinct mastoid tenderness with little or no otalgia. Radiant heat applied three times daily for thirty-minute intervals. Within one week the discharge was lessened to half the amount and in two weeks the ear canal was dry. During the second week the lamp was applied only once daily. No drugs were employed.

Ultraviolet Rays in Chronic Purulent Otitis Media

In a recent paper on this subject, published in the *Eye, Ear, Nose & Throat Monthly*, we classified the varieties of treatment employed by otologists for chronic, purulent otitis media as follows: (1) antiseptic; (2) suction; (3) aeration; (4) irrigation; (5) desiccation and pulverization; (6) zinc ionization; (7) vaccine, (8) radiant light and heat; (9) ultraviolet rays; (10) surgery. We do not believe that radiant light and heat will help very much in the cure of chronic, purulent otitis media. At least our experience has led us to employ this form of energy only in the acute type of middle-ear infections. In the chronic discharging ear, ultraviolet light, however, has earned for itself a definite place in its therapy.

One must first ascertain the presence of bone infection, i. e., sequestra or caries or marked mastoid involvement, and for this purpose the x-ray aids in the diagnosis. Ultraviolet rays will not replace surgery and, when a chronic otitis has reached a point of surgical indication, operative therapy

Fig. 5a.
Ear canal being cleansed by suction.

is, of course, the measure to be adopted. There are, however, many patients who suffer from chronic running ears, in whom no definite surgical indication is present, and for this class quartz-light energy offers prospects of curative results.

Recent investigations have taught that, in conjunction with ultraviolet rays in middle-ear infections, certain fluorescent substances are advantageously employed. These compounds seem to augment the treatment by light rays. Eosin solution was first suggested and, in many instances, served the purpose. Since the newer aniline dyes have come into common use, mercurochrome is now to be preferred. Its action as a fluorescent substance is similar to that of eosin. In darkness, these fluorescent substances are not as toxic as in the presence of sunlight or of the light from a carbon arc or mercury vapor quartz lamp, for it has been fairly well established that, in the presence of light, concentrated from either of these sources, these fluorescent substances acquire the power of destroying infusoria and of neutralizing toxins and enzymes. Formerly, fluorescent substances were injected. This method may be helpful if a definite systemic reaction is desired.

In otorrhea the injection method is not necessary. Instillation of a two- to five-percent mercurochrome solution into the ear canal, after first cleaning the canal by suction and dry swabs, is sufficient (Fig. 5). The solution is permitted to remain in the canal for from five to fifteen minutes, after which the excess is dried out; then the ear is ready to be irradiated with the water-cooled quartz lamp through suitable quartz rod applicators. This can be adequately accomplished under direct vision. The first treatment should not exceed one

Fig. 5b.
Instillation of mercurochrome solution.

minute, increasing the time of subsequent treatments by one-half minute. The voltage of the lamp is always accurately measured.

Fig. 5c.
Irradiating ear with ultraviolet from a water-cooled lamp. Note quartz applicator fitting into canal.

In the beginning of our work, the tendency was to minimize the duration of treatment. Added experience has taught us that heroic doses are frequently necessary. We have cautiously given as much as ten minutes at one sitting after the patient's tolerance had been raised and shorter time treatments had failed, and have thus obtained more favorable results. Such dosage, however, is not generally advocated, as the ability to judge the approximate time comes only with considerable experience. It should, furthermore, be emphasized that the blistering effects of the quartz burner must be known, its total hours' usage influencing the effect produced. By the condition of the burner one can actually gauge the duration of the treatments, because it is well known that a new burner gives the desired reaction much more expeditiously than one that has seen much use.

It is, of course, impossible to give a large number of case histories in a short essay on this subject, but a few illustrative reports will undoubtedly be timely and appropriate.

Case I. W. C. B., female, aged 18: chronic running ear since 9, following measles. Various treatments were given, from time to time, with some cessation of discharge, but there always were remissions. The ear was treated by the method above described with suction, mercurochrome and ultraviolet light and, after twelve irradiations, the discharge stopped. One year has now elapsed and there has been no recurrence. It should be added that general ultraviolet irradiations with the air-cooled lamp supplemented the local treatments.

Case II. H. S., woman, age 33 married: discharging ear since early childhood, following scarlet fever. Was in the habit of using boric irrigations daily. Advised against the use of irrigations and prescribed 2-percent mercurochrome, for home use and dry-cotton swabbing. The usual treatment, as above outlined, three times weekly at office. This patient did not respond as promptly as the others, and it was not until the treatment periods reached ten minutes that the discharge finally ceased. The entire course lasted nearly three months, resulting in a cure, with no recurrence after sixteen months.

Local and General Therapy

Ultraviolet energy in otitis media does not conflict with other local measures which may be indicated. Obviously, adequate attention to nasal and pharyngeal pathology is of the utmost importance (Fig. 6). If inflations of the eustachian tubes are indicated, these should precede the lamp irradiations. Little or no home treatment is advocated, but, when found imperative for good reasons, a 2-percent solution of mercurochrome is prescribed to be dropped into the ear canal once daily. At no time are irrigations with other medicated solutions to be suggested. Dry cotton swabbing, if frequently employed, will at all

Fig. 6a.
Treating the nose with quartz ray. Note that the lamp is straight and not tipped.

Fig. 6b.
Method of treating pharynx or postnasal space with special quartz applicator attached to Kromayer lamp.

times help to keep the ear canal reasonably clean and free from accumulations.

If a culture and smear are taken prior to the first treatment and the nature of the infection ascertained, occasional checks can be made to determine progress. To this must be added the x-ray as a valuable diagnostic aid.

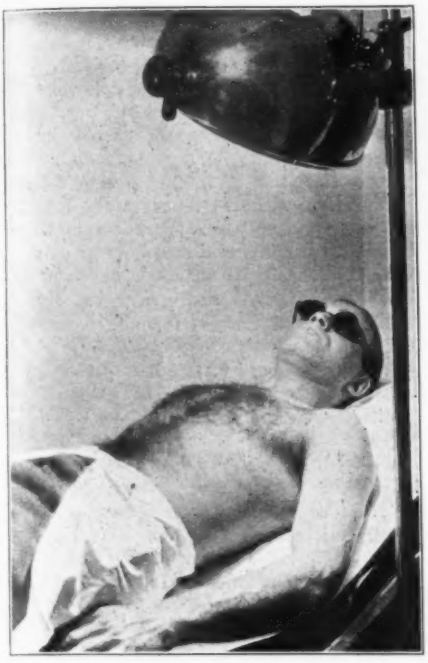


Fig. 7.
General ultraviolet exposure with air-cooled lamp for systemic effect.

It must be admitted that the results are not always perfect. Some patients frequently present, at a later time, an underlying focus which was at first obscure, or else the general physical condition was such as to indicate proper systemic therapy. General ultraviolet exposures with the air-cooled lamp (Fig. 7) are always of tremendous value in these individuals, that is to say, supplementing the local applications with the water-cooled apparatus. One should not overlook the fact that the success to be obtained depends, in a large measure, on the accuracy of diagnosis, for, without the proper selection of cases, ultraviolet or any other form of therapy will fail to produce the desired results.

Action of Ultraviolet Rays on Bacteria

It has been shown that the rays of the blue, indigo, violet and more especially the ultraviolet fields are capable of producing characteristic changes in the chemical composition of organic and inorganic matter. These are commonly known as *chemical* rays. These chemical rays undoubtedly possess a marked germicidal action. Finsen early recognized this and applied these rays, by means of a special apparatus of his own construction, to skin infections, such as lupus.

Juettner describes Kattenbracker's experiments with reference to the action of light on bacteria. Kattenbracker used the light from a lamp, which was a modification of Finsen's, at a distance of 10 centimeters. He used 15-percent nutritive gelatine as a culture-medium for gonococci and tubercle bacilli; 2-percent glycerine agar, covered with sterilized blood serum, for typhoid and other germs. The germs were grown in surface cultures on plates at a temperature of 22°C. The control-cultures were kept at 35°C. to allow for the slight rise in the temperature of the light from the lamp. Inoculation from the rayed cultures on glycerine agar was made after forty-eight hours, and the new culture kept at a temperature of 35°C. for forty-eight hours. The relative viability of the new cultures was taken as a criterion for the relative germicidal power of the light.

Typhoid Bacillus.—After an exposure to Kjeldsen's light, lasting one second, there was no effect. After three seconds, growth was markedly impaired. After thirty seconds, vitality was virtually suspended. After sixty seconds, the culture was dead.

Tubercle Bacillus.—Slight impairment after five seconds. Marked impairment after thirty seconds. Death after two minutes.

Micrococcus Gonorrhœæ.—Slight impairment after five seconds. Marked impairment after thirty seconds. Death after two minutes.

Streptococcus Pyogenes.—Impairment after thirty seconds. Death after three minutes.

It is quite evident from these experiments, and from others conducted since, that all types of bacteria are not affected alike. Undoubtedly, the resistent power of certain organisms plays a rôle, as does the accessibility of infected areas, the underlying pathologic condition, the state of body metabolism and many other factors. The intensity of radiation can be definitely measured today, a fact which facilitates scientific and exact work.

Furrell's explanation is based on the work of Hertel, who investigated the lethal action of ultraviolet radiation on bacteria. Both accept that the action is due to reduction, because they found that green hydræ were less affected by ultraviolet light than the colorless ones, probably owing to the protection obtained from the oxygen supplied by the chlorophyl.

Physiological Action of Light

"Light energy causes contraction of protoplasm and acts directly upon the blood, increasing thereby its oxygenating power. The periodicity of the vibrational activity of the higher light frequencies and their periodical relation to the vibrational activity of oxygen atoms, and also of the fluorescence of the blood and of the lymph-serum, furnish abundant, supporting and corroborative evidence of the physical and physiological action of light energy."

Robertson believes that plant anemia and human anemia are both curable by sunlight. In the case of the plant, the anemia is due to reduced chlorophyl, and exposure to sunlight develops this chemical. In the dark the chlorophyl pigments, carotin and xanthophyll tend to disappear. Sudden exposure to light will kill such plants, as the ultraviolet rays are badly borne by plant life, and the absence of pigments prevents protective absorption.

Plants grown in the dark starve. This fact is analogous in the animals in which the metabolism of carbon compounds is likewise lessened in the dark. "In the absence of normal metabolic change, the reserve nutrient supply is not consumed as rapidly as in light."

Ultraviolet light will irritate normal skin and produce surface skin changes. The effect first to follow radiation is an erythema, and later considerable local irritation. If the skin is heavily pigmented the local reaction will not be great. Ultraviolet light possesses a strong affinity for oxygen. If the tissues are in an unhealthy state, the action of the rays will be intense, the degree varying with the resisting power of the tissues. Likewise, Finsen has shown that normal blood absorbs light rays in large amounts, and it is quite possible, according to many investigators, that changes in the chemistry of the blood result from the light rays. "Exposure to the sun may cause a general leucocytosis with relative lymphocytosis." This effect may be produced also by the rays from the quartz lamp.

Robertson, in his "Electro-Pathology", makes a statement, which, though not unique, is broad and well worth quoting: "In the protoplasmic world light energy is essential to all electrical and chemical manifestations, and throughout the body light energy is everywhere present."

Summary

1.—The treatment of otitis media still presents a serious otologic problem.

2.—The apparatus and the principles involved in their application are important factors in the success of radiant energy therapy.

3.—Absorption of radiant energy follows penetration with the longer wave lengths. When this energy is absorbed into living tissues, it is converted into heat or calories —and this brings about an activation of cellular metabolism—locally over the irradiated part, and distally through vasomotor changes that follow hyperemia.

4.—Radiant energy is best transmitted through clearly transparent glass which yields the maximum effect of deep therapy light.

5.—Radiant energy has been employed early, in cases of scarlet fever and measles showing normal drum membranes, as a preventive measure against otitis media.

6.—Early treatment offers the most favorable opportunities for arresting the trouble and preserving the hearing.

7.—The use of ultraviolet energy in chronic, purulent otitis media has given very favorable results.

8.—Fluorescent compounds augment the effects of light rays.

9.—Heroic doses of ultraviolet rays are frequently indicated, but should be administered very cautiously.

10.—General ultraviolet exposures are often of great value to favor body metabolism.

11.—Quartz rays are destructive.

12.—Light energy causes contraction of protoplasm and acts directly upon the blood, increasing thereby its oxygenating power.

Bibliography

Gerstenberger, H. J. & Dodge, C. T. J.: Use of Radiant Heat Light in Otitis Media. *Am. J. Dis. Child.*, v. 24, p. 320, October, 1922.

Tousey, Sinclair: Medical Electricity. Philadelphia: W. B. Saunders. 1921.

Furrell, W. J.: Principles of Electrotherapy and Practical Application. London: Oxford Medical Publication.

Callison, J. G.: Chronic Aural Discharge. *Laryngoscope*, v. 34, p. 52, January, 1924.

Kobak, D.: Personal Communication. January, 1925.

Kirkendall, J. S.: Suction in the Treatment of Acute and Chronic Otitis Media. *Eye, Ear, Nose & Throat M.*, v. 1, p. 454, November, 1922.

Schlittler, E.: Dry Treamtent with Boric Acid Solution in Otitis Media. *Schwz. med. Wchnschr.*, v. 53, p. 405, April, 1923.

Barnes, G. E.: Gravity Drainage and Swabs vs. Irrigation and Wicks in Otitis Media. *Ann. Otol. Rhinol. & Laryngol.*, v. 31, p. 107, March, 1922.

Friel, A. R.: Treatment of Chronic Otorrhea in School Children. *Hosp. & Health Review.*, January 1924.

Wells, H. G.: Chemical Pathology. Philadelphia: W. B. Saunders Co., 4th ed. 1920.

Hausman, W.: Über die sensibilisierende Wirkung der Porphyrine. *Biochem. Ztschr.*, v. 67, p. 309, 1914.

Finsen, N. R.: Phototherapy. (Trans. by Sequeira.) London: Edw. Arnold. 1901.

Hertel, E.: Physiological Action of Rays of Various Wavelengths. *Ztschr. d. Allg. Physiol.*, v. 5, p. 1, 95, 122.

Humphries, F. H.: Electrotherapeutics for Practitioners. London: Oxford Medical Publication. 1921.

Rogers, C. E.: Therapeutic Action of Light. New York: Published by the Author. 1910.

Hollender, A. R. & Cottle, M. H.: Radiant Energy in the Treatment of Otitis Media. *Eye, Ear, Nose & Throat M.*, v. 4, p. 37, February, 1925.

Hollender, A. R. & Cottle, M. H.: Phototherapy in Otorhinolaryngology. *J. Am. Assoc. Med.-Phys. Research*, v. 2, p. 79, February 1925.

Robertson, A. W.: Studies in Electropathology. New York: E. P. Dutton. 1918.

Hall, Percy: Ultraviolet Rays in the Treatment and Cure of Disease. St. Louis: C. V. Mosby Company. 1924.

Modern Urological Diagnosis and Treatment*

By EDWARD WILLIAM WHITE, M.D., F.A.C.S., and C. OTIS RITCH, M.D., B.S., Chicago, Illinois

THE topic under consideration is rather far reaching and it will be our mission at this time to present for your earnest consideration only such important phases in the technic of diagnosis as are commonly seen by urologists in their daily routine of office and hospital practice.

Urology, as a specialty, has seen, virtually within a few years, many important advances in the diagnosis and treatment of upper urinary tract pathology and these modern improvements should be thoroughly understood and practiced more generally in order to improve our technic in the care of the sick and, further, that we may keep abreast of the current of modern medicine. We believe that it is universally conceded that no special department of medicine or surgery has seen such epoch-making advances in specialistic armamentarium or greater strides in improvement than the refinements of urological diagnosis. The catheterizating cystoscope, cysto-urethroscope, pyelography, renal function tests, blood chemistry in urology, new and refined instruments for intravesical and intraureteral manipulations are all important milestones, in the advance of urological surgery as a distinct specialty.

The Use and Abuse of Cystoscopy

The cystoscope is, without question, the most valuable article in the array of urological instruments and, in skilled hands, is of inestimable value in the diagnosis and treatment of bladder, ureteral and renal morbidity. The cystoscope, however, not unlike many other articles of specialistic paraphernalia, requires years of training and practice in order to appreciate its real value, to correctly interpret findings, and further acquaint ourselves with the uses and abuses of this valuable instrument. The practice of useless and unnecessary cystoscopy is to be condemned, it being not alone unscientific but positively criminal in certain cases.

Patients should be prepared for cystoscopic examination as carefully as for major surgical procedures, and we have found the following suggestions of value in the rationale of preparing cases for complete cystoscopic study. All patients are given a thorough intestinal cleansing with compound licorice powder at night, to be followed by an enema in the morning. Breakfast is withheld and a 1-4 grain morphine rectal suppository is inserted one hour prior to the examination. The intestinal flushing is of importance in all cases, as pyelograms may be decided upon at a moment's notice and, in that event, your case is prepared. Relative to anesthesia, we generally use a 1-percent cocaine solution in the urethra and bladder and in marked irritability, as seen in vesical tuberculosis, we always resort to sacral anesthesia, which is a most valuable adjunct, simple in its technic, and produces excellent relaxation.

Judgment based on years of experience should be utilized in deciding when and when not to introduce a cystoscope. We have chiefly in mind, at this time, cases of prostatic obstruction with but small retention, and where the symptoms are mild in character. These cases are diagnosed

*Read before the Chicago Medical Society, North Side Branch, February 5, 1925.

without much difficulty by a careful rectal palpation and, if you insist on ascertaining the amount of retention, use a small rubber catheter well lubricated. We condemn the introduction of metallic instruments in such cases, as, not uncommonly, severe reaction follows, with complete and total retention, septic temperature, and the various signs of urosepsis. We would rather advise, in these cases, a course of rest in bed, sitz baths, rectal suppositories, depletion of the pelvis by the use of saline laxatives, also urinary antiseptics and sedatives internally. The foregoing regime will generally produce satisfactory results and also will postpone temporarily, if not permanently, an unnecessary prostatectomy.

The cystoscope and ureteral catheters, in competent hands, have been the means of clarifying many a dark page in the department of urinary disease. It is indeed refreshing to see the accuracy with which many a hitherto obscure condition is diagnosed by the use of cystoscopic methods. Our knowledge of pyelitis, ureteral strictures, renal anomalies, tumors, and so forth, has been furthered immeasurably thereby, thanks to the investigators among modern urologists.

Pyelography

We are of the opinion that pyelography is a very valuable factor in determining the diagnosis of urological conditions. This valuable link in the chain of clinical evidence dates back, I believe, to Tuffier who, in 1897, suggested a combination of an opaque, ureteral catheter and radiography. Schmidt and Kolischer, in 1901, suggested and published radiograms clearly demonstrating the location of the renal pelvis and the true course of the ureter. Their technic consisted of passing a strand of fused wire, inserted through a ureteral catheter, simultaneously with radiography.

Fluids used as opaque substances were advised by Voelcher and von Lichtenberg in 1906, their media being colloidal silver (collargol) and I believe their efforts were the first reported in the use of liquids as opaque substances for urological roentgenograms. They were the first to call the attention of the medical profession to the value of pyelography as an aid to the diagnosis of upper urinary tract pathology and their early investigations were a stimulus for others to carry on the work, with the result that a wealth of valuable data have recently been gathered.

Technic of Pyelography

Pyelography, under ordinary circumstances and in careful hands, should not be attended by untoward effects. Accidents are invariably due to faulty technic or the failure to observe the ordinary commonsense precautions. That severe and even fatal results have been reported is universally known. We will enumerate a few important findings following the early use of pyelography:

1.—Lesions in the kidneys with destruction of renal tissue, seen after removal, due to distention with colloidal silver.

2.—Infarcts in the parenchyma, stained with silver.

3.—Wedged-shaped areas of gangrene, and so forth.

The foregoing findings have been frequently reported and were generally due to a faulty technic, or the use of some dangerous, granular, opaque media.

In our work, sodium bromide, 10 percent, is always used and is slowly injected through a small caliver catheter into the renal pelvis. We generally inject 5 to 7 Cc. in cases without dilated pelvis. If this condition is present, we increase the quantity injected until mild discomfort is noted.

Drainage is imperative and precaution must be utilized so as not to injure the pelvic mucosa during the catheterization. We endeavor to make bilateral pyelo-urecterograms at one sitting as patients complain, and justly so, of a second, unnecessary cystoscopy. All cases are injected bilaterally, with syringe technic, and in our experience this has been entirely satisfactory.

Diagnostic Data

We do not consider pyelography an absolute and final criterion. It is simply a spoke in the wheel of a complete urological diagnosis. We have found, however, that, in the diagnosis and treatment of the following conditions, its value has been without question, namely:

1.—Locations of renal shadow in the diagnosis of malposition.

2.—Ureteral obstruction, kinks and so forth.

3.—Pelvic deformity, as a result of renal tumor.

4.—Renal and ureteral anomalies.

5.—Monocystic kidney.

6.—Hydronephrosis.

7.—Normal pelvis.

8.—Renal and ureteral lithiasis.

In closing our remarks on pyelography, we are of the opinion that, if an accurate diagnosis can be made without pyelography, then this procedure is contraindicated; also unnecessary instrumentation of these parts should be severely criticized. Furthermore, we have noted that pyelography will often come to our assistance in those cases where ureteral catheterization and radiographic evidence have not quite fully enlightened us as to the correct diagnosis.

Renal Function Tests

Tests of renal function, whether by the use of phenolsulphonephthalein or indigo-carmine, naturally have a place in diagnosis, but their actual value has always been a much mooted question. In our work, very little importance is given to our present methods of functional estimation.

The phthalein tests, as suggested by Geraghty and Rowntree, was extensively used until very recent years and was considered of great value in the diagnosis of certain kidney maladies, but we think all will agree that its value is questionable.

A functional estimation that will inform us as to the reserve power of the kidney when its mate has been removed, and the remaining organ is called upon to put forth extra effort, would be received as a distinct advancement in urological surgery. All of us have seen cases when the remaining kidney failed utterly to carry the load, although the functional output, urine findings, radiograms and so forth appeared normal; also, we not uncommonly encounter, in cases of prostatic surgery, a somewhat parallel condition, as patients with remarkably good phthalein outputs often run a wretched postoperative course. Naturally, other conditions are always to be considered. We do not mean to infer that these tests are valueless.

Indigo-carmine is of distinct utility in assisting us in the location of ureteral orifices in cases of trabeculated bladder, also in noting the time of appearance in cases where the ureters are difficult or impossible to catheterize; but, we are of the opinion that the present tests of functional estimation are losing authority in diagnostic value. They estimate the filter power of kidney and not the reserve index.

We have considered, in a rather general way, three important phases of urological diagnosis, namely, cystoscopy with ureteral catheterization; pyelography; and renal functional estimation. All are important individually but preeminently so when used conjointly in obtaining an accurate and trustworthy diagnosis.

Hematuria

Modern urology, with its refined methods of diagnosis and treatment, has clarified many hitherto obscure chapters in this important department of medicine and surgery. The days of exploratory cystotomies, and exploratory lumbar incisions for renal diagnosis are long since past. Patients with such important symptoms as hematuria, colic, pyuria and so forth are thoroughly investigated in order to ascertain the exact cause and extent of the difficulty. We can not too forcibly impress you with the importance of a careful and thorough search for the cause of hematuria, a symptom so commonly seen, and upon which volumes have been written, yet so unscientifically handled in many instances. We will present in abstract three cases illustrating such conditions, all of which were consultation cases seen within the past six months.

Case 1.—G. B., age 62, male, presented himself with a history of having had occult blood in the urine at various times for the past three years. Had had very little discomfort but suffered considerable loss in weight and strength. His former treatment consisted of rest, diet, and hematinic tonics. No attempts had been made to ascertain the exact cause, although he had been under the care of two authorized practitioners of medicine. The final diagnosis was papillary carcinoma of the right renal pelvis and ureter.

Case 2.—M. C., age 42, male. The patient was refused life insurance due to microscopic blood in urine. Subjective symptoms were practically nil and he had been treated by several physicians. The patient had been treated palliatively in every instance with no attempts to determine the cause.

The diagnosis was a small illusive ulcer on the superior surface of the bladder.

Case 3.—C. L., age 58, male. Diagnosis: jackstone calculus in a postprostatic pouch. This patient has been treated for six weeks with bladder irrigations and narcotics internally. A plain x-ray would have cleared up the diagnosis; yet, even this had not been advised.

Blood in the urine is invariably important, regardless of the age of the patient. It is commonly the forerunner of many important and serious urological conditions, from a varicosity of a renal papilla to a urethral papilloma; hence, the value of a painstaking analysis in every case. It is

important not to lose sight of the fact that some of the more frequent causes of hematuria are not uncommonly overlooked, due to our anxiety to find gross and unusual pathology and forgetting the fact that urethral strictures and urethral polyps, prostatic varicosities and seminal vesiculitis very commonly are productive of hematuria. These conditions will frequently cause blood in the urine the source of which is ofttimes difficult to ascertain and rather confusing.

Infection and Hematuria

Infection as a cause of hematuria has been given considerable attention within the past decade and were we to accept entirely the theory of Rosenow in establishing the existence of a stone-forming streptococcus, then renal stone would be the result of distant and remote infection. The kidney as an excretory organ is called upon to clear the blood stream of many and varied organisms or their endotoxins, and that this function is often productive of permanent damage to the kidney substance is well understood; hence, extraurinary foci of infection as causes of hematuria should be carefully considered in all obscure cases of renal bleeding.

Hematuria may be due to distant or adjacent foci of infection. In this connection, one must remember the acute febrile conditions. We believe that, at various times during the course of every acute fever, blood, bacteria and pus cells are present in the urine; possibly a pyelitis or pyelonephritis is presenting itself. Yellow fever, small pox, typhoid, influenza and others, are all commonly productive of hematuria. Also, we must consider the teeth, tonsils and sinuses in searching for the etiology of obscure cases of urinary bleeding.

Renal and Ureteral Stones

The role of infection in the formation of renal calculi has been even less understood than in the case of vesical calculi. That the grosser forms of renal infection are the cause of renal calculi seems unlikely. Pyelonephritis of colon bacillus origin is very commonly seen in the female and especially during pregnancy. However, it is well known that renal stone is more commonly seen in the male.

Retention as a factor in stone formation is admitted, but as the all-important factor it must be denied. If such were the case, stones would be more commonly seen in women.

Obstruction

Obstruction operates by compressing the renal tissue, as a result of hindering the emptying of the renal pelvis. This is more marked with small stones than with large ones, because the former can move in such a way as to cause intermittent obstruction and, at a later date, become fixed and the kidney becomes accustomed to their presence. It is rather surprising that stones do not, by obstruction, produce more damage to renal tissue than one would naturally expect. In the majority of cases, the amount of obstructive damage is comparatively small.

The hydronephrosis produced by stone may at any moment become pyonephrosis, due to the entry of infective organisms. That the infective organisms reach the kidney in the ordinary process of excretion has been definitely established through the experimental work on renal infection.

We should also remember that infection may reach the pelvis by way of the blood stream supplying that part. Infection minus obstruction is more likely to become pyelitic in character, whereas infection plus obstruction usually results in hydronephrosis and finally pyonephrosis. The foregoing remarks on obstruction and infection are only general in character but are important facts which have been universally observed and are worthy of consideration.

Diagnosis

We know of no urological condition which has yielded more readily to modern urological therapy than renal and ureteral stone. The opaque, ureteral catheters and pyelography have transformed a condition which was formerly difficult to diagnose into a comparatively simple one.

In the differential diagnosis, we must ever have in mind acute and chronic appendicitis, with adhesions; gall-stone colic; chronic seminal vesiculitis, due to the proximity of the vesicles to the lower part of the ureters; lesions of the spine and sacroiliac joint; lesions of the central nervous system, chiefly tabes; also ulcerative conditions of the pylorus; intraureteral conditions, such as congenital strictures, kinks and new growths; as well as malposition of the kidney, producing colic due to lack of drainage. The above conditions, although quite formidable, are all generally ruled out, following a careful cystoscopy and ureteral catheterization.

Treatment

We will bring before you only such important factors in the treatment of renal and ureteral stones as may be consistent with the brevity of this contribution. Renal stones, as concerns treatment, may be divided into three classes; small pelvic stones, large pelvic stones, and calculous pyonephrosis.

We have ever felt that renal calculi are, in many instances, incompatible with the continued integrity of the kidney and we chiefly allude to those cases with large renal stones; hence, in these cases, nephrotomy or pyelotomy is indicated. Small pelvic and ureteral stones will generally pass unaided and, in the absence of infection, we see no reason for alarm or haste in advising unnecessary intraureteral manipulations. Should severe colic present itself, one may resort to the use of morphine, and it is advisable, in selected cases, to pass a small catheter above the stone and establish drainage. Sterile olive oil is also injected at this time and frequent x-rays are taken to carefully ascertain the progress of the calculus. It is often surprising to note the size of stones that have passed the course of the ureters, both unaided and by a cystoscopic assistance.

Stones in the lower or pelvic ureter are generally more amenable to intraureteral manipulations than those which are more or less fixed in the upper ureter. We have seen cases where stones firmly fixed in the ureteral orifices were dislodged by forcible digital palpation per rectum. However, a small incision with cystoscopic scissors will permit the stone to pass into the bladder whence it may be easily removed. It is important in these cases of ureteral stone, and especially where the upper ureter is involved, to obtain a wide dilatation of the ureter. This will assist in the progress of the stone and, further, will assure us of good drainage. Graduated ureteral bougies have, in our experience, been more useful than metal ureteral dilators.

We believe that all ureteral calculi should be removed, if progress is not being made in their descent, for their presence will, undoubtedly, ultimately impair the renal substance. If cystoscopic methods are unsuccessful, one should resort to open operation, which, under ordinary circumstances, is not attended by much difficulty. We have seen quite a number of cases in which the patience and good will of the patients were severely tried by many unsuccessful attemps at intraureteral operations.

Pyuria and Bacteriuria

Pus in the urine is probably the most common finding seen by urologists in their daily routine, and while its presence in small quantities and unaccompanied by blood and casts is not alarming, yet, in our judgment, the source of pus should always be ascertained, if possible. The presence of bacteria in the urine, distinguishable only by cultural methods and unaccompanied by pus, generally signifies some latent infection. However, when the urine is clouded by bacteria, the cause is frequently a catarrhal condition or a chronic, mild pyelonephritis. In our search for the etiology in these cases, it is important not to overlook infections in the lower urinary and genital tracts. We are often too anxious to advise hospitalization; too hurried with our cystoscopes, catheters and pyelograms.

The prostate, seminal vesicles and urethra as foci of infection, which intermittently or continuously expel pus, is well understood, but they are not uncommonly overlooked in our anxiety to find gross bladder or renal pathology. Urethroscopic inspection of the entire urethra, bringing into view the glands of Littré and the lacunae of Morgagni, also the presence of strictures and new growths, is a very necessary procedure, as is also a careful routine prostatic and vesicle analysis, the value of which cannot be overestimated.

The seminal vesicles, due to their anatomical structure, are probably the most common sites for pus formation in the entire genitourinary tract, periodically discharging toxins and antitoxins into the blood stream and pus into the urethra. The seminal vesicles when infected are characterized by chronicity and recurrence and, in advanced cases, are productive of an unusual and extremely varied symptomatology. Our present knowledge of the seminal vesicles as foci of infection for distant and remote organs is a distinct advance in urology.

Summary

1.—In closing and to summarize, we feel that urology has seen some important and vital refinements in diagnosis and treatment, and these advancements should be more generally understood.

2.—A complete and exacting urological examination is imperative in every case of hematuria and pyuria.

3.—The use and abuse of cystoscopy and ureteral catheterization should be more generally known.

4.—A more complete knowledge of the intricate ramifications of the genital organs and their role in infection would be welcome.

7 West Madison St.

Some General Aspects of Tuberculous Infections

By J. A. DUNGAN, M.D., Greeley, Colorado

THE purpose of this article shall be to emphasize the diagnostic elements and to set forth the newest, and the most dependable of the older methods of treatment.

General Considerations

Stevens defines tuberculosis as, "a specific, infectious and mildly contagious disease, communicable from host to host, caused by the bacillus of tuberculosis, and characterized, in its most typical form, by the appearance of small, circumscribed nodules of granulation tissue—tubercles—which tend to undergo caseation and softening, but which, under favorable conditions, may become calcified or be converted into fibrous tissue."

The disease may be widespread in the body, but usually it is confined, for a longer or shorted period, to one organ or tissue. It may, however, become widespread at once, as in acute miliary tuberculosis.

The Specific Microorganisms

In 1882, Koch discovered that the disease was both infectious and contagious, and that the direct and communicable cause was the tubercle bacillus.

This organism is aerobic, parasitic, heavier than air, and is only air-borne when it has attached itself to particles of dust. It is of such general distribution that many writers believe that very nearly one hundred percent of the human race and many domestic animals have, or have had, tuberculous foci, active or inactive.

The germ is not directly transmissible from parent to child by heredity, but, in former years, all infants born of tuberculous parentage were very early in life, exposed to infection.

Hereditary Physical Traits

Although tuberculosis is not hereditary, certain traits observable in the parents, which tend to favor the development and maintenance of tuberculous disease, are very apt to be observable in the children. In spite of this, the sons and daughters of tuberculous parents often develop into strong, rugged, healthy individuals. It is more than likely, too, that such a child has inherited from his mother and father a certain amount of the immunity which either or both developed in the course of their fight against phthisis.

The organism of tuberculosis is not, *per se*, harmful to the integrity of the tissues—secondary infections with staphylococci, streptococci, pneumococci and others form ulcerations and abscesses and devitalize the tissues which the tubercle bacillus utilizes as food.

Whether the tubercle bacillus produces a toxic material destructive to blood cells is doubtful, the tissues being, for the most part, destroyed by the toxins of the pus-producing organisms.

Fibrin

Wherever the tubercle bacillus lodges, it becomes surrounded by a fibrous capsule, but fibrin is put to so many uses by the animal economy that the permanence of a wall erected around a tuberculous focus is oftentimes threatened by the fact that new needs may arise within the system for this plastic material, and the capsule around the focus may be dissolved and used elsewhere.

One of the many uses which nature makes of fibrin is as a splint for fatigued muscle; and it is for the reason that a focus may be uncovered, to provide support for tired muscles, that we enjoin rest upon our tuberculous patients.

The fibrinous wall around the tuberculous focus may thicken, as time goes on, and become permanent, the inclosed germs ultimately starving to death. In such a case the dead germs become an element of safety to the economy instead of danger, since their absorbed contents, a species of nucleinic-acid, acts upon the blood after the manner of a vaccine, causing a strong immunity to arise in the

body tissues against future invasions of these organisms.

There are, however, reasons why this wall of fibrin, may *not* prove permanent. It is used as a supporting material for the growing body. Growth is ordinarily most apparent, because most rapid, about the age of puberty; hence, at about this time, there would be the greatest call for fibrin. The body grows so rapidly that all of the fibrin present is frequently used to form supports for the newly-produced cells. Accordingly, fibrin from the capsule around a tuberculous focus is frequently used for this purpose, permitting the infection to become active once more at this period.

Authorities agree that tuberculosis is most destructive to human life between the ages of ten and twenty years; less destructive between the ages of twenty and thirty; much less between the ages of thirty and forty; and that, after forty, primary tuberculosis is so extremely rare as to be practically negligible.

Loosely Organized Tissues

Why should the period of the greatest growth in the body be the period of the greatest danger? For purposes of illustration, let us consider the tuberculous invasions as a fire. If you were to throw a lighted match into a pile of dry excelsior, it would blaze up at once; but throw the same match against a solid stick of wood, and the chances are that it will not even take fire.

An analogous condition exists in the lungs and, to a less extent, in all the tissues of the body, at and near the age of puberty. The tissues are loose and easily inflammable, and will continue to be in danger of invasion until age shall have knitted them closer together, making it harder and harder, as the years go by, for organisms to obtain a foothold and spread. This is true of all infectious and contagious diseases.

The truth of this proposition was illustrated in the 1918 pandemic of influenza which resulted in some eight millions of deaths. The outstanding element in its spread was the fact that most of the fatal cases were in the young and vigorous; those who, for the most part, had never had any illness before and, therefore, had never built up any immunity against the various organisms with which the true influenza bacillus was associated. All these organisms rapidly spread through the tissues. If these were loose, as the tissues of the young and growing individuals generally are, the infections resulting passed rapidly beyond the reach of medical or surgical aid; whereas, if the tissues had been solidly and closely knit, as in older persons, there would have been a minimum of fatalities. It was the outstanding characteristic of the "flu" invasion that the young and vigorous were the ones to succumb while those older and with more immunity, and with tissues closely grained, i. e., with plenty of fibrin, generally recovered.

The Large Mononuclear Leucocyte

Normally, the large mononuclear leucocyte exists, in health, in approximately a ratio of 15 to 30 percent of all leucocytes. Its ratio decreases somewhat in tuberculous persons, at sea-level. It was discovered by Webb and Williams, working in the laboratories at Colorado Springs, that, when a person, whether tuberculous or not, moved to higher levels, the various mononuclear white cells increased in numbers with the altitude attained, until, at a level of 7000 feet, they constituted 60 percent of the total leucocytes, while at sea-level the proportion averages about 40 percent. The bearing of this fact upon tuberculous conditions will be realized when it is remembered that the mononuclears are, normally, the chief factors in phagocytosis. Here we see the chief advantage to a tuberculous patient from living in the higher altitudes. There may, however, be disadvantages also. Let me enumerate one or two.

The Altitude Factors

As one moves to higher levels, one continually encounters atmospheric air containing less and less oxygen the higher he ascends. Naturally, he has to breathe a little faster to take in the needed amount of that gas. In this connection, I should mention that the air in the higher levels contains more ozone relatively than air in the lower levels, although to what extent this latter fact will serve to offset the deficiency of oxygen remains to be determined.

It is rare for a tuberculous patient to have an overacting heart so that, whether the patient has or has not a heart lesion, a relatively high altitude, everything considered, is better for him than a low level. It remains for him then to pick out a location (from three to six thousand feet high) which has in its atmospheric air the least moisture and dust, the most oxygen and ozone, the least wind, the greatest yearly prevalence of sunshine, the most

equable temperature and the greatest freedom from rains, snows and winds.

The writer has often been asked, by patients who are desirous to return east after a longer or shorter stay in the higher altitudes of the Rocky Mountain region and who seem to be clinically well, "How long must I stay in this altitude?" This question may be answered by saying; "You must stay here for three consecutive years in which there have been no active manifestations from any of your walled-in foci."

One may naturally inquire, "Why, if one has attained a clinical cure in this or that altitude, might one not safely return to a lower level, if the tubercle-bacillus-devouring mononuclear leucocytes have increased greatly, thereby adding much to the patient's resisting power against the tuberculous invasion?"

Here we are face to face with the peculiar fact that nature is seldom able to duplicate the performance of multiplying the mononuclear lymphocytes in the blood *of a person who has not attained an actual as well as a clinical cure in the altitudes, but who has returned to lower levels.*

Symptomatology

The tuberculous child is pale, anemic and greatly underweight—often thirty to forty pounds. He is irascible, fretful, indifferent and heedless, or he may be distinctly nervous. His desire for nourishment is always lessened, which is quite often due to the fact that, at home, he has been overfed upon confections.

The glands of the axilla, the groin, and the cervical region are often more or less enlarged. The habit of the body is slouching and the shoulders are apt to be stooped from the contraction of the diseased lung tissue. The skin may be of that ghastly whiteness from which the great "plague" was named. Particularly will this latter change be noted if one looks at the back of the neck. In either the blonde or the brunette type, if the patient has a leaky heart the skin may be of a bluish tint.

In the family history, tuberculosis of the lungs, or elsewhere, may be a prominent item. Other debilitating diseases, such as measles, whooping cough or pneumonia (and influenza), will be subjects of inquiry. Focal infections, as of the nose, ears, tonsils and teeth, may play more or less of a part in the examination.

Laryngeal changes are usually noted very early in pulmonary tuberculosis. There is often noticed, by the relatives of the patient, a peculiar change in the voice which is hard to describe. In general, the voice is softer and weaker, and this change, it may be reasonably assumed, is due to anemia of the vocal chords which, in turn, is only a part of the general anemia. It is practically certain that anemia also accounts for the large number of cases in which a heart murmur is audible, which is often a mere functional or "hemic" murmur.

Physical Examination

Strip the patient to the waist, and seat him upon a low stool. Stand behind and look down and upon the front of the chest, watching the relative expansion of the lungs. The more affected lung will expand less than its fellow. The chest may be well-shaped, but more often is long, flat and narrow, with deep infraclavicular fossæ and wide intercostal spaces.

We look for clubbing of the finger ends; an emaciated upper torso with a long, slender neck; ghastly white and delicate appearing skin. Bright eyes and possibly a hectic flush are strongly suggestive of pulmonary tuberculosis, especially if there is an afternoon rise of temperature.

On percussion, we note various changes in the more affected lung compared with the other. The general tone elicited is from a half-tone to four full-tones higher, albeit a flatter sound. I have noticed universally that, even though the higher sound in one lung comes from only a small focus, and the difference between the two lungs is slight, the whole affected lung, back, front and sides, compared, spot for spot, with the other lung will everywhere give the same difference in tone.

Auscultation will also reveal, everywhere over the surface of an affected lung, the same relative difference in the tone quality compared with the other lung. The stethoscope should be applied regularly over every part of both lungs, and comparisons made spot for spot. If, while listening, the patient is directed to take a full, short breath, the value of the stethoscope is enhanced, as sounds may thus be elicited which would not otherwise be heard.

Stevens says, "The earliest physical signs of infiltration and excavation are always apical and usually consist of diminution, or lagging, of the chest movement, slight dullness on percussion, the presence of fine crackling or clicking rales, following cough, and weakness of the respiratory murmur,

with or without interrupted inspiration, or harsh breath sounds with prolongation of the expiration."

We frequently hear various rales, and other sounds, as of a "squeak", a "rub", a "whine", or even a "muffled thump", as of the movement of a large portion of badly diseased lung substance which rubs on the pleural surface when the air enters the bronchi.

"Extensive solidification is revealed, as a rule, by localized retraction of the chest wall and limitation of movement, pronounced dullness on percussion, exaggeration of the tactile fremitus and vocal fremitus, and bronchio-vesicular or bronchial breathing." (Stevens.)

Briefly, the onset of tuberculosis is insidious, the earliest symptom being either change in the voice tone, persistent indigestion, a slight hemorrhage or sputum that contains fresh blood, slight morning cough, noticeable increase of vague chest pains, abnormal rapidity of pulse rate on least exertion, occasional flushing of one cheek or both, progressive loss of weight, chilly sensations with slight elevations of temperature in the evening. Later, all these symptoms are aggravated; the cough is more pronounced and the expectoration is more profuse; emanciation is more marked and the septicemia increased; with a higher temperature, more rapid pulse, more sweating and greater prostration.

The Treatment of Tuberculosis

Sunshine, fresh air (night and day), moderate exercise (or entire rest in bed as befits the exigencies of the special case in hand); a diet consisting of lean beef, eggs and milk, all three given to the limit of the patient's ability to digest protein foods. To this should be added cod-liver oil, a tablespoonful after each meal (or before, as suits the patient's desire). To control the septicemia, I advise a small enema of soda water—thirty-five Grams of sodium bicarbonate to the quart of blood-warm water—as much of the enema as possible being retained.

Oil of eucalyptus is rubbed over the chest (back, sides and front) each day.

Intensive treatments of the air-cooled ultraviolet ray are given daily.

Twice a week we inject intravenously 5 Cc. of a sterilized solution containing 15 grains of calcium chloride, C. P., in distilled water.

Pneumothorax Treatment

In CLINICAL MEDICINE for February (p. 103), and May, 1924 (p. 321), there appeared articles by the writer in which were described a pneumothorax machine and its use.

I have since that time given two hundred and fifty pneumothorax treatments to forty-seven patients with pulmonary tuberculosis and consider it *"facile princeps"* among the single remedial agents to which I have access in the fight with the "great white plague".

In only two of these cases have I found that the patient experienced any of the phenomena of which we are warned by so able an authority as Da Costa. In these two cases, some hours after the primary injection of 1000 Cc. of filtered air into the pleural sac, there was slight pleural shock which soon disappeared and never recurred, although these patients subsequently received several "refills". These two were both desperate cases of tuberculosis of the lungs, and in both there were leaky hearts. Of the forty-five others treated by the pneumothorax method, in connection with the measures enumerated above, the lung conditions are now improved to such an extent that I consider them clinically cured.

Case Reports

Case 1.—Mr. G. W. F., age 24, married, first seen September 28, 1923. In June, 1922, he had suffered from slight pulmonary hemorrhages. He had lost thirty pounds in weight (when seen weighed 110 pounds). When able, he insisted on working, despite my earnest warnings.

I gave him, during the following year, forty or fifty injections of a sterile 5-percent solution of calcium chloride, occasionally giving as much as 100 Cc. at a dose. During this year his weight, in spite of his unfavorable living conditions, increased to 127 pounds.

Occasionally, he had slight hemorrhages, but I was never able to persuade him to take pneumothorax treatments.

His condition became distinctly unfavorable in October, 1924, and on the 15th of November of that year he had a severe hemorrhage. Confined to his bed with a high temperature, he developed a tuberculous pneumonia. Another exhausting hemorrhage, on November 16th, convinced him that his only chance, faint though it admittedly was, lay in artificial pneumothorax, but this, on account of his

desperate weakness, I was unable to give him until November 18th. At that time he could scarcely raise his hand from the stretcher as he was taken to the hospital. I injected 1000 Cc. of filtered air into his left pleural cavity.

He was put to bed in the sitting position. About midnight his breathing became very difficult; his heart beat with extreme rapidity and a blotchy pallor appeared upon his face. I feared for his heart, which was enlarged from a mitral leak coexisting with the tuberculosis, and probably antedating the latter.

In this emergency, I gave him whisky by mouth, strychnine nitrate hypodermically and, later on, hot milk by mouth. Hot water bags were applied to his feet, and manual friction used upon his hands and arms. His breathing soon became more regular, the normal color came back to his face and the heart beats slowed and strengthened. Three days later he walked downstairs and was driven thirteen miles into the country to his home.

Thirteen refillings, ten days apart, and averaging 150 Cc. each, have so far been given him. His weight is now 121 pounds. He is working as a traveling salesman, and is clinically well of tuberculosis of the lungs.

There has never, since November 18th, been any sign of hemorrhage except twice in a "red-colored" sputum. There is no elevation of temperature in the afternoon, and no rales of any description in his left chest. The right lung is fairly good, never having been markedly affected. His heart, moreover, is normal in beat and rhythm, though the leak can be heard more plainly than before, probably on account of transmission of the sound by the injected air. His appetite is good, and he sleeps at night. He is not disturbed by coughing and expectorates very little, the flora in the sputum being practically nil.

Case 2.—Mr. L. C. A., single, aet 24. In May, 1921, he went to a sanatorium for tuberculous patients and spent 11½ months there. He was moderately improved, gained in weight, felt better and learned how to take care of himself. In the spring of 1922, he began to lose weight and his left lung began to consolidate and disintegrate rapidly. It was at this time that I first saw him. I put him on the usual diet, with cod-liver oil, tonics and biweekly intravenous injections of calcium chloride in distilled water. His disease seemed to become stationary. I also urged upon this patient the application of the artificial pneumothorax treatment but, as he had never heard of its use except in hemorrhage cases, he refused.

I saw him no more until February, 1925. At this time, while the right lung was in fairly good condition, hardly any air was entering the cells of the left lung. Various squeaks, whines, rubs and thumps could be heard over the left chest, back and front but practically no air sounds.

His weight had decreased from one hundred and forty-two pounds to one hundred and twenty-one. His temperature was intermittently high, expectoration profuse, and there was great emaciation. He was extremely toxic. His heart had a mitral leak and was considerably enlarged.

I told this patient, in the presence of his relatives, that I had only one hope of materially lengthening his life, and that was the chance that I might be able to find a nonadherent spot in his pleural cavity and collapse the diseased lung, thus shutting off the production and absorption of toxins. He eagerly consented to the pneumothorax operation, and I took him to the hospital.

Upon percussing and auscultating the left chest, I found faint breath sounds about six inches below the axilla. Also, there was a deeper resonance upon percussion, suggesting that the air was here entering the pulmonary alveoli, and that the pleural surfaces were freely movable upon each other. I introduced the needle into the pleural sac, and the fluid in the manometer "U" tube went up nearly to the top signifying a negative pressure as from a considerable space. On account of the condition of the heart, I introduced only 750 Cc. of filtered and sterilized air.

Like the other case, he evinced the signs of some pleural shock about midnight, but this was easily controlled by the same methods used in the former case and he afterwards slept peacefully until morning when he got up, dressed and went home, thirty-five miles out on the dry lands. To date, he has gained eleven pounds in weight, feels well, sleeps well, has a good appetite, no fever, and little expectoration. Since February, I have given him the air four times, and since the first time there have been no signs of pleural shock or of any other dangerous symptoms.

It is too soon to claim a clinical cure in either of these cases; but, from the results to date in these two cases, as well as the other forty-five I have had under

the pneumothorax treatment in the last three years, I feel intensely hopeful.

Summary

1.—The basis upon which the treatment of tuberculosis has rested has a good and solid foundation.

2.—Common sense as well as scientific accuracy has, in the main, characterized the specifications for the diet of tuberculous patients in the last fifty years.

3.—The tuberculous patient is not a danger to those immediately associated with him if he is cleanly and careful regarding the depositing of his sputum.

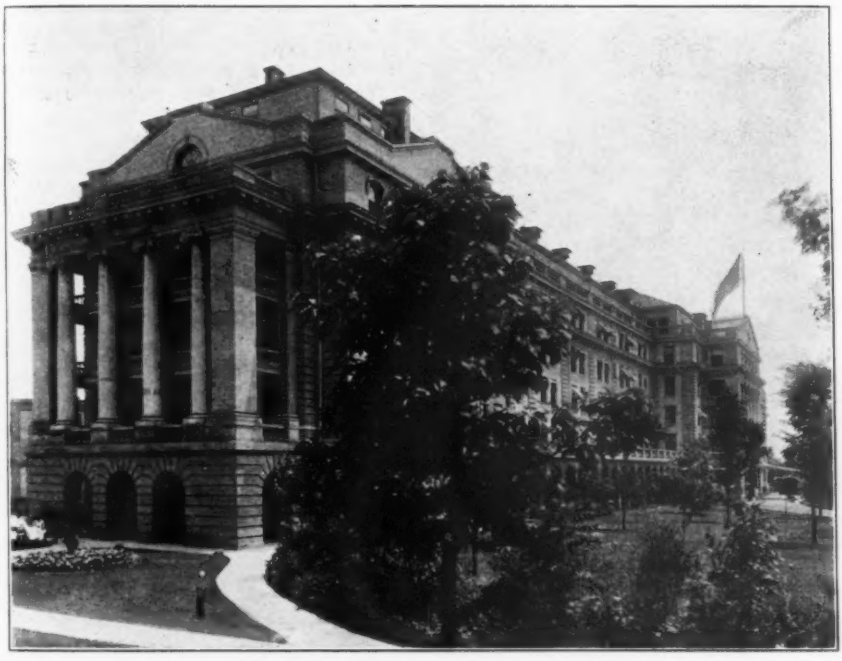
4.—The administration of calcium chloride intravenously and ultraviolet ray treatments should be advised.

5.—The pneumothorax treatment offers us the largest degree of hope for the speedy cure of those affected with pulmonary tuberculosis.

The Battle Creek Sanitarium

By GEORGE B. LAKE, M.D., Chicago, Illinois

IN 1866 a little group of men, among whom was one named John Kellogg, being impressed by the idea that people in general were getting away from the natural ways of living, organized themselves into a stock company, having a capital of $18,000 and the name of "The Health-Reform Institute", and proceeded to give what was then known as "the water cure", but has since acquired the more dignified appellation of hydrotherapy.



View showing north end of Main Building.

In 1896 the affairs of this little company were closed up and the stock sold to a new company, at the head of which was placed Dr. John Harvey Kellogg, the son of one of the original incorporators.

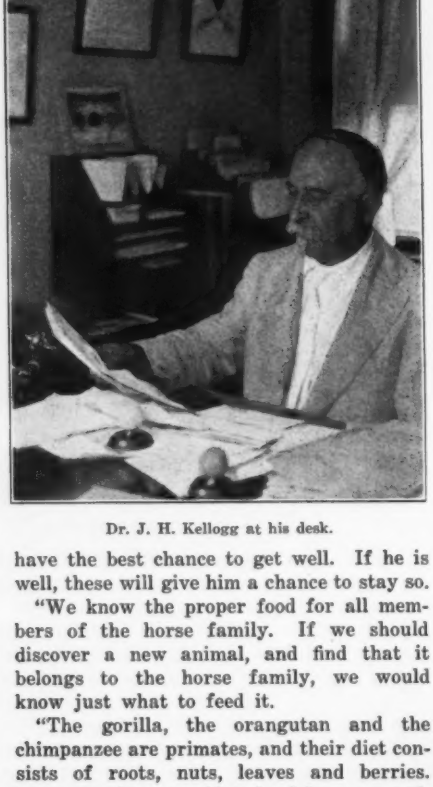
The organization is now worth millions of dollars and at no time has any individual made any profits out of it, for one of the articles of incorporation provided that all revenue, over and above expenses, was to be turned back into the institution for the furthering of scientific education and for charity.

Dr. Kellogg recently spent most of the morning telling me of his ideas and ideals

and of the purposes of the institution of which he is still the Director, at the age of seventy-three years. I could not take down his conversation verbatim, but will try to give the gist of it in the form of a direct quotation, for the sake of simplicity.

Founded on Physiology

"Our whole work here is founded not upon fads but upon physiology. We believe that, if a man is sick and can be given clean air, clean water and clean food, he will



Dr. J. H. Kellogg at his desk.

have the best chance to get well. If he is well, these will give him a chance to stay so.

"We know the proper food for all members of the horse family. If we should discover a new animal, and find that it belongs to the horse family, we would know just what to feed it.

"The gorilla, the orangutan and the chimpanzee are primates, and their diet consists of roots, nuts, leaves and berries. *Homo Sapiens*, considered solely as an animal, is also a primate and should logically, on physiological grounds, confine himself to the diet of the other members of the great family.

"Vegetables, if exposed to moist heat, will ferment, but a piece of meat, under like circumstances, will *rot*, the same as a dead rat in a closet.

"More than half of the meat that we eat is not digested, but passes on into the intestinal canal where it rots and furnishes pabulum for an innumerable host of putrefactive bacteria, whose activities and their end-products pour a stream of toxins into the blood.

"If we would change to a vegetable diet, with a temporary excess of carbohydrates, the intestinal flora would change to the fermentative type and we would be greatly benefited thereby. The taking of cultures of lactic-acid-producing bacteria hastens the process, but the flora will change by itself if given a chance.

"A sick man is a broken down machine and, in order to restore him to a reasonable functional efficiency, we must remove as many handicaps as possible. The products of intestinal putrefaction are a handicap, which may be removed by changing the flora—so we change it.

"Believing in clean air, we have built our institution away from the smoke of a great city upon a beautifully wooded knoll. Believing in clean water, we have procured it and now use it in all sorts of ways. The problem of clean food was not so simple.

Clean Food

"At first we had trouble in getting satisfactory milk, vegetables and eggs—a stale egg is worse than meat—so finally we established our own farm (it embraces over 700 acres); our own dairy herd (now consisting of 235 Holstein cows—one of the finest herds in the country) to furnish us pure, clean milk; and our own hennery (there are now about 10,000 chickens, furnishing about 1,000 eggs a day) to give us our supply of absolutely fresh eggs.

"All food-handlers are carefully examined, physically, and are required to wash and disinfect the hands before any food is

View of the front of the main building showing power house, nurses' homes, section of greenhouse and grounds.

Research and Laboratory Building.

handled. Our dishwashing appliances are of the best. Our kitchens are spotless.

"We believe that a man should be clean, inside and out, so, in addition to giving all sorts of baths, we train our patients to have a bowel movement after each meal and to make sure that the colon is clean at night. This latter we test by giving a capsule of carmine after breakfast and then making sure that none of it is present in the stool the next morning, showing that the day's intake has all passed through.

"We give few drugs, not because we are opposed to them on principle but because we find that physiotherapy will usually accomplish the purpose better. If drugs are really needed, we give them.

"In connection with our surgical cases we almost never have any complications, because we begin to treat the complications *a week or ten days before we operate* by giving carbohydrates to build up the reserve of glycogen, and by thoroughly cleaning the intestinal canal. Also, well-considered physiotherapeutic procedures will almost always relieve pain as completely and far more satisfactorily than will morphine.

"One of our central ideas is to teach people *how to live*. We do not plan to keep people here until they are *well*, but until they are *started on the right track*. They can then complete their cure at home and *stay well* by living correctly."

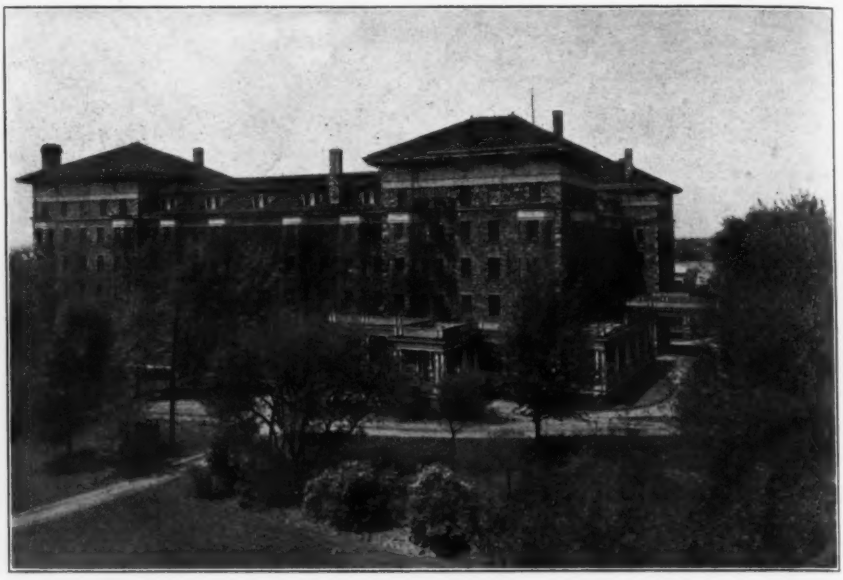
The Sanitarium

The Sanitarium itself is a huge building, six stories high, of yellow brick, occupying, with the annex, hospital, cottages, schools and other buildings, about 60 acres of beautifully wooded grounds, about a mile from the main business center of Battle Creek.

When you enter those grounds, you leave tea, coffee, meat, alcohol and tobacco behind —but most of the people who throng the terraces, porches and lawns seem happy.

In the main building, annex and about 50 cottages owned by the Institution, they are able to house about 1000 patients at one time, and they have facilities for feeding and treating 200 more, who must room outside. They care for about 11,000 patients every year and about 4,000 guests (friends and relatives of patients, and others) who receive no treatment.

About 20 percent of the patients are referred by their family physicians, and



Annex Building.

the Sanitarium sends back full reports to these physicians upon request. The rest of the patients come at the suggestion of friends or from reading the literature sent out.

Almost all of the patients are ambulant when they arrive, very few being acute cases. The amount of surgical work is, however, surprisingly large for a place of this character. In 1924, 1561 general surgical operations were performed; 1570 special operations—eye, ear, nose and throat and others; and 585 obstetrical cases were cared for.

The Staff

The staff consists of 50 physicians; 134 trained (graduate) nurses; 135 student nurses; 24 dietitians; 90 physiotherapy technicians; 30 laboratory technicians; and 1200 to 1400 secretaries, cooks, clerks, waiters, gardeners and other helpers.

All, including Dr. Kellogg himself, are on a salary basis, the salaries now being reasonably adequate to the character of the services rendered, though, in former years, they were very small.

All the various departments of a large clinic are well represented by specialists and equipment along the various lines. The x-ray department is especially well equipped, even to the newest high-power Coolidge tubes for gastroenteric work, and the huge tubes for giving treatments. A number of special methods and apparatus have been devised for the special work which they do in taking stomach pictures.

While all classes of cases can be adequately handled, the especial emphasis is still laid upon the handling of disorders of digestion and metabolism and the various systemic intoxications, including cases of "general physical breakdown".

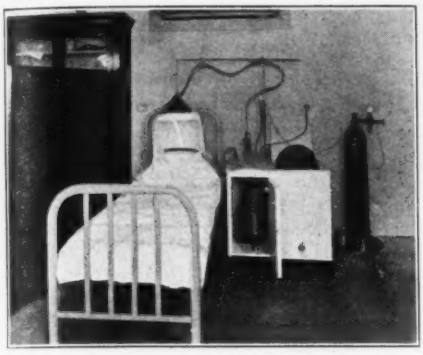
There are few physicians who prescribe drugs or surgery without a careful study of the patient's individual condition and the particular indications for the remedy to be used; but, in using physiotherapeutic methods—diet, exercise, hydrotherapy, rest, etc.—the indications are often much less carefully systematized and studied.

Scientific Exercise and Diet

In this institution exercise is prescribed as carefully and accurately as are strychnine and digitalis. Every patient is given a complete test of the strength of all the individual muscle-groups of the body, by means of the very interesting universal dynamometer designed by Dr. Kellogg. After charting the results of this test (which requires from 30 to 45 minutes to make) it is possible to direct the exercise to the parts which need it most, and to regulate it to the powers and capacities of the individual.

Diets are prescribed only after a careful study has been made of the patient's diges-

tive and metabolic functions, by means of complete radiological study of the gastro-intestinal tract, careful examinations of the stools and urine, basal metabolism tests and, where necessary, gastric analyses. After these are made, a prescription for diet is written with the same exactness as a prescription for drugs, and to aid the patient in following this prescription the menus in



Oxygen Therapy Apparatus.

the dining room are printed with tables of values following the various articles showing the percentage of proteid, carbohydrate, fat, salts, etc., and the caloric value possessed by each.

Oxygen and Sunlight

Oxygen therapy is used, apparently with great success, in cases of anoxemia, manifested by cyanosis, arising in cases of pneumonia, emphysema, certain cardiac disorders and other conditions. This treatment is administered by means of a special apparatus perfected by Dr. Paul Roth, director of the research laboratory of the institution, by means of which it is possible

Artificial sunlight. Where the open arc, mercury vapor and quartz light are combined.

Section of the grounds with Annex Building in the background.

to give accurately measured percentages of oxygen, combined with refrigerated or warm air, moistened or medicated to exactly the degree required by the particular case.

Much reliance is placed upon the tonic and curative properties of sunlight and facilities are provided so that patients of both sexes may spend a number of hours each day engaged in various sports and pastimes, or simply resting, practically nude, under the direct rays of the sun. When the condition of the weather or of the patient makes this impracticable, artificial sun-baths are given by means of the combined rays of the open carbon arc, the ordinary mercury vapor lamp and the quartz light.

All sorts of physical exercises and sports are encouraged. Very weak patients are

Corner of Library.

started with Swedish movements, massage and various forms of mechanical vibrators of all sorts, mostly devised at the Sanitarium. When they become strong enough so that they can safely carry on more strenuous activities, there are tennis courts,

swimming pools, and other places where they may indulge in these.

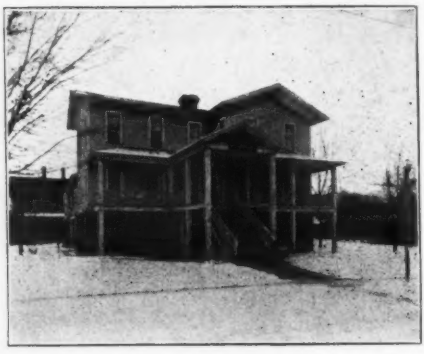
An extensive technical library offers opportunities for literary research by members of the staff and by visiting physicians; while a large general library gives to the patients a choice of informing, stimulating or purely recreational reading. Frequent concerts, lectures and assemblies help to break the monotony of institutional life.

The Hospital and Clinic

For the handling of surgical cases, an excellent 70-bed hospital is provided which

Section of one of the operating rooms.

offers all ordinary facilities for the care of patients and for clinical instruction, as well as several which are rather unusual, such as supplying the operating room with air which has been filtered, washed and warmed or cooled, as required. This operating room meets the highest modern standards. On the roof of the hospital a solarium is now being built and glazed with "cello-glass", a synthetic substance said to transmit the ultraviolet rays of the sun as freely as does fused quartz, while being little more expensive than ordinary glass.

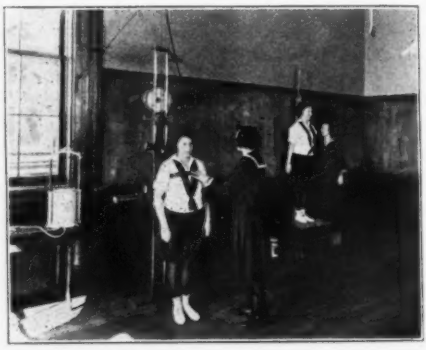


Free Dispensary.

An out-patient clinic is maintained for the care of the people of Battle Creek and nearby towns. Here 3747 different patients were treated in 1924. This treatment is free to those who are unable to pay, while those who are able pay according to their ability. This clinic has its own staff of physicians and nurses, though all the members of the staff are available for consultation.

Laboratories and School

The research laboratories are doing a great deal of important work of high scientific character. Dr. Paul Roth is in charge of the general research laboratory; Dr. Mitchell is conducting a series of interesting experiments in the effect upon the nutrition and development of white rats produced by various articles of diet and by ultraviolet irradiations and the feeding of irradiated foods; while Prof. W. N. Boldyreff, M.D., for many years an assistant of the great Russian physiologist, Pavlov, is carrying out some highly important investigations regarding the effects of diathermy upon the secretions of the gastrointestinal tract.



Kellogg Universal Dynamometer.

In 1878 a school was established in connection with the institution. This school has varied in name and in scope, having, at one time, conferred the degree of Doctor of Medicine, but there has always been an organized educational program. It is now known as Battle Creek College and gives excellent courses in nursing, home economics and physical education. Many of the students pay all or a part of their expenses by performing various kinds of service about the College or Sanitarium.

The fees for general treatment usually include board and room. If a patient is unable to pay these fees, there are places where board (sanitarium style) and rooms may be obtained outside at less expense. If investigation reveals that a patient is wholly unable to pay, and is worthy, he may be accepted as a charity patient. Surgical fees are adjusted according to the patient's financial ability. All business arrangements are conducted by the business manager and not by the professional staff.

The clinic is always glad to offer its facilities for clinical study and instruction to any reputable physician, and such visiting students are always cordially received and put in touch with the lines of work in which they are most interested, so that this may well be considered as one of the important centers of medical research and education in the middle west.

Ethical Advertising for Doctors

By J. A. BUTLER, Tulsa, Oklahoma
The *Tulsa World*

FROM Tulsa, the Oil Capital of the World, down in Oklahoma where the wide, wide open spaces are, and men are millionaires or doctors, comes the breath of relief to thousands of downtrodden physicians.

The greatest enigma the doctor has ever been unable to solve, although it has received exhausting analysis from the time barbers drew a distinction between surgery and hair cutting, (at least in theory, although they still retain the red and white poles representing gory bandages,) has been unraveled.

How to collect BACK BILLS, the spectre that has followed in the wake of the family doctor, as unshakable as the old man of the sea, has received a fierce thrust of a scalpel from the right auricle down through the left ventricle, with the Spanish twist on the end of it, so that it makes it doubly effective by ripping over to the right ventricle and up through the left auricle.

With the villain writhing in the dust (and why shouldn't there be dust?), let's wipe off our trusty blade, put our hand in our bosom and rest our sword arm, as Napoleon used to do, and find out about this slaying of the dragon.

The hero of the story—and we hear cries of "Who?—Who?"—and visions of the next Nobel prize winner are seen. But instead of another Pasteur or Jenner, or some equally famed scientific person, the man who propounded the idea, we must admit, was not seeking from a humanitarian point of view to relieve the medical profession. He was an advertising salesman of the *Tulsa World.*

A conversation with a Tulsa doctor, who was suffering with the deadly *flattus pocketbookus*, a plague among doctors, who are subject to *uncollectibillus*, gave the ad man an idea as well as an inspiration.

He rushed over to the office and dashed off copy, page after page of tear-bringing, soul-wringing copy, that would have moved Bryan to contribute to a Darwin statue fund.

Within a week, 125 Tulsa physicians had reviewed the copy, endorsed it and agreed to finance a ten-weeks' advertising campaign.

Medical work in the city was plentiful enough, but the collection of many fees was like cutting off the heads of the Peloponnesian Hydra. Bills and importunate as well as sarcastic letters and threats were only so much time and money wasted.

But there is a right and a wrong way to do anything, and threats seldom bring payment of a bill, particularly if the threatener is a doctor. The patient, who is well now, just laughs, "Ha ha—ho ho—," and says, "Try and get it."

During the past few years, there has been under way a subtle but decidedly effective drive by merchants and retail credit men to teach the general public to pay its bills.

If a child learns that it is wrong to cheat people, to lie to them and not pay for things he gets, he will need no instruction in that line. But if he doesn't learn it when he is young, he must learn it some time.

So the hundreds of retail merchants' associations all over the country have, in addition to their own personal advertising, kept up a campaign, week after week, sometimes running only weekly or monthly reminders, that HONEST PEOPLE PAY THEIR BILLS.

It is instructive, educational to many persons, and has not been known to SELL a great deal, but, since the COLLECTION is the principal object of the selling, it is obvious that the urge to PAY for goods bought is of more vital importance to the merchant than the urge to BUY the products. The merchants found the results worth far more than the cost of the periodical reminders, and have continued the campaign as a regular part of their advertising appropriation.

The neglect of paying the doctor has been proverbial. It has been handed down from father to son like the red plush album and the Bible. It has become as traditional as mother-in-law slayings, and has grown to an anathema on the doctor.

But every people has its David, who volunteers to humble the giant, and the ad man, who had analysed conditions for the retail merchants, used the same sort of pebble to battle for the physicians.

On Sunday morning, February 1, a reader of *The World* opened the paper to an inside page, where, in a prominent position, the following greeting reached out and slapped his face:

"HOW MUCH DO YOU OWE YOUR DOCTOR?"

Not much chance to misunderstand that. Mr. Tulsaite gasped. He squirmed uneasily in his chair, swallowed the remainder of his breakfast coffee uncomfortably and hurriedly turned the page.

But the inference was too great and he turned back to swallow the rest of it. No need to READ it—it strode right off the page, seized the reader by the lapel and spoke outright.

"Your doctor occupies a unique position in our daily affairs. At times he is the most important individual in the world. At other times he is the least thought of.

"When you need him—you need him badly. Regardless of the time, day or night, regardless of the weather—when you seek his counsel, YOU DO NOT HESITATE TO CALL.

"But, how about pay?—DO YOU—in return for these services PAY YOUR DOCTOR PROMPTLY?

"Are you one of those individuals who FORGET your doctor WHEN THE CRISIS IS PAST?

"Are you the kind who let your doctor's bill run for months and spends money on other things?

"Are you the kind who, to use the vernacular of the street, 'wears glad rags' while your doctor 'patches his old trousers', BECAUSE YOU WILL NOT PAY HIM WHAT YOU OWE HIM FOR HIS SERVICES PERFORMED WHEN YOU WERE IN NEED?"

No, there's not a chance to misunderstand that. It is the sort of copy with a wallop that generally starts from the knees and lands on the bill-dodger's chin with the well-known "dull, sickening thud."

Possibly the reader recovers and forgets about it. But there—that's provided for. The next Sunday, in just as prominent a place, the messenger who sought out Garcia is again on duty.

It is like opening an old sore—it hurts more every time, and for a period of ten weeks the conscience-stricken Bill Beaters of the city receive their Sunday morning lashing.

"His refusal to answer your beck and call may mean LIFE OR DEATH. He knows that, and he comes, even though YOU DON'T DESERVE his attention. Yet, when the danger is past, you pay everyone else before you think of him."

The next week it may be:

"Is your last baby paid for?" or "Is the doctor still pleading for his money?"—or "Don't swap doctors to beat your bill. Both the "dismissed" doctor and the newly engaged one know what you are doing. THEY HAVE SEEN YOUR KIND OPERATE BEFORE."

The reader scans every article for a signature, for some means of detecting who the perpetrator of this truth-baring outrage can be, but all he finds at the end is:

"Your doctor is reading this article too. Will he see you tomorrow and think you dishonest and without honor? He will, unless you pay him or make arrangements to pay."

The campaign WAS a surprise to Tulsa. Yellowed with age, the time-worn bills of months past, and in many cases, years past, were brought out from behind the clock and PAID.

Most of them were paid by mail, possibly because of troublesome consciences, but they were PAID. Weather-beaten, dried up consciences were softened into pliable masses and PEOPLE PAID UP. And they felt better for it.

But most of all surprised were the Tulsa doctors. Every one interviewed, of the

group which backed the campaign, reported great numbers of unpaid bills being settled.

One doctor had his greatest month, with regard to collections, in February, the first month of the campaign. Others who had not been approached about financing the drive told of unusual returns during the time the ads were run and, not only immediately after the campaign but, ever since have their bills been more promptly settled, they say.

Entirely without solicitation, scores of physicians have warmly commended and congratulated *The World* on the series of advertisements, on the pioneer effort in that type of advertising and on the quality of the straight-from-the-shoulder copy, which was the real secret of its success.

Dr. Everett S. Lain, president of the Oklahoma State Medical Society, and Dr. A. Ray Wiley, secretary of the Tulsa Medical Society, are listed among those unsolicited letters of approval.

Inquiries and requests for copies of the series of advertisements have come from newspapers and medical organizations in each of the forty-eight states, and even some from the forty-ninth.

Inquiries, requests and testimonials on file in *The World* office would rival those of the famous Lydia, savior of the human race, herself.

The Development of Intravenous Therapy

By DAVID E. USHKOW, New York City

INTRAVENOUS medication is not a new method of treating disease. In 1881, Landerer is supposed to have given the first direct injection into the vein. Kobert states "the method was to expose the vein by an incision, cut with scissors and then apply a tourniquet." In 1802, Paul Scheel wrote "Transfusion of Blood and Injection of Medicaments into the Veins". In the seventeenth century there were several suggestions regarding the intravenous methods, since experiments on opium injections were made. At this time Elsholz invented a small syringe for injection into the vein. Ebstein[1] reports intravenous injections which were made in 1665 in treating a syphilitic soldier. At this time the medicaments employed were 8 grains of scammony resin diluted in 3 drams of essent. guaiac.

In 1853, Pravaz discovered the hypodermic syringe. Panebaker[2] points out that, in 1657, Robert Boyle, the celebrated physicist and chemist, was given the idea of intravenous introduction of medicine by Sir Christopher Wren. Johannes Daniel Major, 1664, published his *Prodromus a Se Inventae Chirurgiae Infusoriae* in which he related experiments of infusing a dog with a liquid extract of opium. In 1667, Schmidt, of Hamburg, related the cases of five patients who were treated by intravenous medication, two of whom were syphilitic and who were injected with jalap. Stirius (1668) mentioned the substances which were used for injection—alcohol, water, opium, tartar emetic, etc. One of the first drugs to be administered was opium; but, even in 1666, intravenous injections were given for syphilis. Toward the end of the eighteenth century Fontana, Magendie, Bichat, Orfila, Nysten and others were interested in this work. Even in 1814, Percy attempted to treat cases of tetanus with opium and stramonium, and, in 1823, Magendie treated cholera by intravenous injection of camphor in alcohol. Landerer (1892) used sodium cinnamate for tuberculosis and in 1897 Gantier introduced the use of sodium cacodylate for pernicious anemia.

Treatment of Syphilis

Prof. Baccelli of Rome (1890) employed the intravenous use of quinine in malaria. Baccelli was impressed by the advantage of direct medication to the corpuscular elements of the blood in certain phases and types of disease. He injected a dog intravenously with a solution of mercuric chloride 1:1000, until 5 Cc. of the solution were injected at one time, without deleterious effect. Encouraged by these results, he applied his experiments to human beings and treated some cases of syphilis, which had resisted all other treatments; he gave intravenous injections of mercuric chloride 1:1000, beginning with doses of 0.001 Gram and progressively increasing the dose to 0.005 Gram. His results were excellent and other observers in Italy—Jemma, Colombini, Nieddu and Campana—continued these studies.

The treatment of syphilis by the intravenous route was one of the earliest applications of this form of treatment in modern

Delineatio Inſtrumenti Infuſorii,
cum Applicatione Ejus in Brachio Humano.
A. Ligatura prima. B. ſecunda.
C. Locus applicandi Inſtrumenti.
D. Veſica liquorem vena Infundendum conti-
nens. Inſtrumenti orificio majori appenſa &
aligata.

Intravenous Injections in the seventeenth century. —From *Medical Life.*

times. Schaudinn and Hoffman discovered the spirocheta pallidum in 1905, and Wassermann announced the complement fixation test for syphilis in 1907. In 1910, Ehrlich discovered salvarsan and in 1912, Swift and Ellis[3] gave their experiments on the intraspinous use of salvarsanized serum. In 1910, Fordyce and Nichols[4] were the first in their country to report on the use of salvarsan. Erhlich later brought out neosalvarsan.

Bismuth in the treatment of syphilis has been used since 1921. Sazerac and Levaditi were the first to use this method of treatment. Bismuth in suspension is used in intramuscular injections.

Hypodermic Medication

For several years, in Italy, the hypodermic methods of administering drugs were widely employed and even peasants possessed a hypodermic syringe and gave medicaments hypodermically. Zambalette's preparations, made in Milan, were in use for some time before our chemical houses began their manufacture.

Following hypodermic medication, it was found that properly prepared solutions could be given to human beings with safety. The methods of application were easily acquired and there were no reactions and no complications following the use of these solutions. It was found that, by the intravenous route, remedies had a direct action and the results were much more rapid than when the same chemicals were given by mouth. There is no inconvenience to the patient.

The properly prepared solution for intravenous use is isotonic[5]; it is tested bacteriologically and mice are injected with the solution to test the toxicity of the final product. The drugs employed must be of the highest standard and the ampules made of the best resistant glass. A Mandler filter is used for filtration and the ampules are baked in hot-air ovens under a temperature of 121° C. The sealed ampules are then sterilized in an autoclave for one hour under twenty pounds pressure.

Iron and Hexamethylenamine

Today, many diseases are being treated by the intravenous route. The old method of treating anemia with Blaud's pills or hypodermic injections of iron arsenite has been superseded by intravenous injections of iron and arsenic. A few injections of this preparation will have the effect of long-continued hypodermic injections of iron arsenite. Moreover, the treatment is painless, while the hypodermic route is always attended with pain and discomfort, lasting from a few minutes to several hours. Frick[6] reported ten cases of anemia treated with sodium cacodylate, from ½ to 1 Gram in 10 Cc. of sterile water, and another series of ten cases of anemia which were treated by intravenous medication of iron and arsenic. The results were very gratifying.

Recently, there has been quite a good deal of discussion about the effects of intravenous injections of hexamethylenamine. Friedlander and Cowen[7] gave the following conclusions:

"1.—Hexamethylenamine properly sterilized, prevents hemolysis, and is perfectly harmless given intravenously in a 5-Cc. dose of a 40-percent solution. This may be repeated two or three times during twenty-four hours.

"2.—It has a decided effect on urinary retention and dysuria, and probably a diuretic effect may be claimed.

"3.—Intravenous administration of hexamethylenamine is followed by a rapid excretion of formaldehyde directly by the kidneys in appreciable quantities before entering the bladder; and formaldehyde appears in acid and neutral urine.

"4.—Concomitant, intravenous administration of phenolsulphonephthalein solution does not interfere with, nor retard, the excretion of formaldehyde, nor interfere with

the test for formaldehyde in the urine. Formaldehyde excretion is much more rapid than is that of phthalein or methylene-blue.

"5.—Free formaldehyde is found in the blood stream by the most delicate test available after the intravenous administration of hexamethylenamine solution; it could not be demonstrated one-half hour after the injection. Blood within, or outside, the body apparently splits up hexamethylenamine into free formaldehyde.

"6.—Formaldehyde is eliminated in the saliva following the intravenous administration of the hexamethylenamine.

"7.—Apparently the hexamethylenamine, administered intravenously, splits up into formaldehyde in the blood stream and has a distinctly germicidal action. At least clinical evidence would seem to point to this."

Other observers have reported excellent results from the intravenous use of hexamethylenamine in kidney, bladder and prostatic infections. In Vienna, Berlin and Paris, favorable reports are being given in medical literature. The results follow after a few days of medication and, in all probability, this method will be universally adopted instead of the oral administration of this chemical, whose action is always uncertain. In fact, many scientists believe that it is without effect when given by mouth.

Sodium Iodide

Harris[8] reported interesting results following the use of sodium iodide in acute and chronic respiratory diseases. He says: "The remarkable results obtained by the use of sodium iodide intravenously in the chronic bronchial conditions offered so much hope that it was decided to try the drug in the more acute bronchial conditions. Two years ago we began using sodium iodide in every case of influenza and the results were so far beyond those obtained by any treatment we had ever used that it was decided to try it as a prophylaxis for this disease."

Favorable results have been reported from the intravenous use of sodium iodide in cases of asthma, chronic arthritis, chronic headache and tertiary syphilis. In senile patients it has a good action and should be used in syphilitic patients past the age of 55, in whom the arsenical preparations are not well tolerated. The dose is 20 mils every two or three days.

In cases of rheumatism, sodium iodide combined with sodium salicylate and colchicine often has an excellent effect. It will relieve the pain of arthritis or neuritis in a few minutes and after several injections the patient is often permanently relieved, due consideration, of course, being given to underlying causes, such as focal infection. Fifteen grains of sodium salicylate and an equal amount of sodium iodide, with 1/100 gr. of colchicine are given at intervals of one to three days, the solution being isotonic. Physicians will welcome this method of treatment in obstinate conditions which often defy all medicaments by mouth.

In streptococcic infections, pleurisy with or without effusion, generalized infections and arthritis, sodium iodide, 22 grains, and sodium salicylate, 15 grains may be given at intervals of two or three days.

Other drugs which may be given by the intravenous route are iron; arsenic and phosphorus; sodium iodide and guaiacol; calcium iodide and guaiacol; calcium chloride; mercury oxycyanide; arsenic; and mercury.

In the near future we may look for still other remedies which can be introduced directly into the vein, and there is a great deal in store for the future in this field. Intravenous therapy is firmly rooted in medicine.

Bibliography

1.—Ebstein, Erich: On the Development of Intravenous Therapy. *Med. Life*, v. 30, p. 601, December, 1923.

2.—Panebaker, George: Origin of Intravenous Medication. *Med. Life*, v. 30, p. 162, December, 1923.

3.—Swift, Homer F.: Direct Treatment of Syphilitic Diseases of the Central Nervous System. A Preliminary Communication by H. F. Swift and A. W. M. Ellis. *New York M. J.*, v. 96, p. 53, July 13, 1912.

4.—Nichols, Henry J.: Treatment of Syphilis with Ehrlich's "606"; by H. J. Nichols and J. A. Fordyce. *J. A. M. A.*, v. 55, p. 1171, October 1, 1910.

5.—Ushkow, David E.: Intravenous Preparations: A Proven Money-Maker for the Physicians' Supply House. *Surgical Appl. & Instr. Rev.*, v. 3, p. 39, May, 1925.

6.—Frick, John Howard: Ten Years of Intravenous Therapy in General Practice. *Med. Rev. of Rev.*, v. 28, p. 323, July, 1922.

7.—Friedlaender, Bernard: Study of the Effect of Intravenous Injections of Hexamethylenamine Based on One Hundred and Forty-two Cases. By Bernard Friedlaender and R. L. Cowen. *Internat. J. Surg.*, v. 35, p. 329, July, 1922.

8.—Harris, H. G.: Intravenous Medication, with Special Reference to Iodoform and Sodium Iodide in the Treatment of Acute and Chronic Respiratory Diseases. *Journal-Lancet*, v. 40, p. 535, October 1, 1920.

239 Fourth Ave.

The Management of the Puerperium*

By FRED D. HOLLENBECK, M. D., Chicago, Illinois

Chief Obstetrician, American Hospital; Formerly Instructor Rush Medical College; Assistant Professor, Obstetrics, Chicago Policlinc and Medical Department, University of Illinois.

MUCH is being said and written, at the present time, regarding the management of cases of normal and pathological labor, but it seems that much less attention is being given to the care of women after labor is completed and before they take up the duties of their every-day life than this subject deserves.

I will try, in this article, to set forth some ideas whose value I have demonstrated to my own satisfaction regarding the management of women in the puerperal period. These points will be brought out in a more or less random manner, as they occur to me, but I hope they will be found, none the less, useful and valuable.

It is granted, I take it, that results are what we seek and, no matter what afflicts our patients, we endeavor to so guide their care that, when we are through with them, their condition is as nearly normal as we can compass and that they will be able to take their places in the social and economic structure. This is most true of the parturient woman.

Granted, also, that the parturient patient is not ill—in the ordinarily accepted use of the term—it is evident that they should not be treated as such, speaking now of the usual, socalled normal case.

Diet

One of the older customs has been to keep these patients on "slop diet" for the first three days after confinement. In my opinion, this is useless and it has been my custom for many years to give soft diet until the bowels are evacuated. This is usually accomplished during the first twenty-four hours after labor by a full dose of magnesium sulphate, followed in 3 or 4 hours by an enema, when necessary. When the bowel toilet is accomplished, they are placed on general diet.

When this method is followed, I find that my patients are much more comfortable and less troubled with gastrointestinal disturbances, distention and other evidences of toxemias, than those in which I used other cathartics, two to four days after labor. Lactation seems to me to be more quietly established with less tumultuous engorgement of the breasts and consequent discomfort.

Another factor confirming me in following early bowel toilet is the elimination of fever during the early days following labor. It is a rare event when my patients have a temperature above 99° F.

Exercise

Most women, especially in these days, earnestly desire that the beauty of their figures shall not be marred by pregnancy and labor, and this desire is a perfectly normal and commendable one. In order that the figure may be retained, it is necessary that the muscles be not permitted to atrophy and become flabby through disuse. The use of a snugly applied abdominal binder is a great comfort to the obstetrical patient after her delivery, but, it does not take the place of early and properly regulated exercise.

I am in the habit of permitting my patients to use a commode, at the bedside, to urinate and defecate, at the end of forty-eight hours. I find that these functions are performed much more satisfactorily and easily in the normal sitting position and with the aid of the abdominal muscles than they are upon a bedpan, and the movements of the limbs and body involved in getting up are highly salutary.

About this time, I direct the patient to begin moving the arms and legs gently, from time to time, increasing the vigor of these movements every day so that the joints are not permitted to become stiffened nor the muscles entirely flaccid.

By the fifth to the seventh day, according to circumstances, I direct that the patient stand erect at the bedside, for *one* minute, several times during the day. After two days of this, she is allowed to take a few steps on each occasion (for example, to get out on one side of the bed, walk around it and get in on the other side). This exercise is gradually increased each day, and the calisthenics in bed are made more and more vigorous.

The ancient custom of not permitting obstetrical patients to get out of bed until the end of ten days or two weeks, and then

*Read before the Medical Round Table, of Chicago, June 11, 1925.

directing that they shall sit in a chair for short periods during several days before they are allowed on their feet, seems to me to be a mistaken practice. I maintain that sitting in a chair should be about the last stage in getting the patient up and that this should come about at approximately the time when the lochia ceases, and by this time I have her walking about quite freely.

The process of uterine involution should be very carefully watched and is, I believe, markedly assisted by the system of exercise which I have suggested. If necessary, the uterus may be gently massaged, through the abdominal wall, to stimulate contractions.

All this, coupled with the assumption of the knee-chest position twice daily, usually results in the establishment of complete involution in the normal period of from six to twelve weeks.

Care of the Breasts

Many patients have considerable difficulty with the breasts during the puerperal period. I believe that much of this could be avoided if, during the last month before delivery, the breasts are shampooed daily with a turkish towel, using soap and water, and the nipples gently washed with alcohol. This latter also has the advantage of making the nipples sufficiently prominent to be grasped by the infant when the time comes.

During the first two days after birth, the infant should be permitted to nurse for five minutes, *no more*, every eight hours. This obviates the maceration of the nipples which is produced when a lusty baby is permitted to remain working at a dry breast for from fifteen to thirty minutes every two or three hours.

During the period of mammary engorgement, before the actual flow of milk is established, it is quite customary to use a breast pump or to massage the breast from the periphery towards the nipple. This practice is based upon the incorrect assumption that we are trying to force something out of the breast through the nipple. As a matter of fact, the tense and uncomfortable feeling of the breasts at this time is due to engorgement of the veins and lymphatic vessels and not of the secreting mammary alveoli, as there is usually no milk at this time, and, if massage is to be used, it should be from the nipple towards the periphery, so as to facilitate the emptying of the engorged vessels into the axillary and subclavian veins.

If the breasts are to be kept in the virginal condition after confinement and lactation, they require considerable care in the way of adequate support with a carefully fitted and adjusted breast binder. The nipples should, of course, be thoroughly cleansed before and after each nursing with some mild antiseptic, such as boric acid solution, to obviate infection.

Use of Medicines

I never give pituitrin until the cervix is entirely obliterated and the head engaged in the pelvis, so that I am sure that the labor can proceed without interruption, and even in such condition I use the drug rarely. I do, however, give it in most cases immediately after the child is born, as it assists in the expulsion of the placenta and the subsequent contraction of the uterus.

After the placenta has been delivered, I am in the habit of giving 2 Cc. of ergotole, or 4 Cc. of the fluid extract of ergot, as I am satisfied that this assists in the process of involution and tends to prevent postpartum hemorrhage.

If lactation is delayed, or insufficient, I think it may be well to try giving placental extract, although my experience with this preparation is not sufficient to enable me to make any authoritative statement on the subject.

It must be definitely understood that all the suggestions made above are intended for use following normal, noninstrumental deliveries and not in surgical cases where forceps have been used, lacerations repaired or other surgical procedures resorted to. These cases must be individualized to the highest degree and it is impossible to lay down any set routine for their management, but I believe the above procedures, if carried out in propely selected cases, will result in patients resuming their ordinary life, after labor, in a very much better and more comfortable physical and mental condition than would otherwise be the case.

Surgical Seminar

Conducted by GUSTAVUS M. BLECH, M.D.

Discussion and Solution of Surgical Problem No. 7

Recapitulation. This problem, which was submitted by Dr. Frank William Porterfield of Waterloo, Iowa, and which appeared in the June issue of CLINICAL MEDICINE, deals with a man aged 43, whose parents are living and well, but whose past history, otherwise, is not clear.

Three months preceding the present trouble he had influenza, with, in all probability, a concurrent sinus infection.

Ten days before appearing for treatment he began to suffer from a headache, with the greatest intensity at the vertex in the median line. The pain was, at first, mild and he sought no treatment, but in a few days it became intense and he came to the clinic.

The man gave little impression of acute illness; pulse, temperature and respiration being normal. Urinary analysis was negative; bowel and urinary elimination not disturbed. Pupils reacted to both light and accommodation, the only striking symptom being the intense headache which remained localized. Vision and hearing tests showed no abnormality. An analgesic was administered for temporary relief.

Two days later the intensity of the pain necessitated hospitalization. Radiograph of the head showed nothing abnormal, but the ophthalmoscopic examination revealed bilateral choked disk. There was now involuntary urination; beginning clonus of both feet; Babinski's reflex present in the right foot only; Gordon's reflex and Oppenheim's sign on the right side only; patellar reflex slightly more marked on the right; cremasteric reflexes equal on both sides; coordination slightly impaired; occasional nystagmus to the left; Kernig's sign negative; occasional projectile vomiting; slight stiffness of the neck muscles; decided tenderness to percussion of the suboccipital region. There was no facial paralysis and no deafness; the teeth were in poor condition and the soft palate was swollen.

The patient was able to sit up and smoke and had good bowel control. When standing on his feet there was a tendency to fall to his left. Adiadokocinesis was constant. Blood count showed 8,840,000 reds and 9,750 whites. Blood and spinal fluid Wassermann tests, negative. Spinal fluid was under great pressure and showed a cell count of 150.

Six days after admission to the hospital the patient died suddenly. The treatment was nonoperative. A hypodermic injection of morphine seemed to increase the pain in the head.

The requirement calls for a diagnosis and the treatment which might have proved efficacious.

Discussion by Dr. Bernhard Lang, Langenthal, Switzerland

(Translation from the German.)

Since one year I read regularly and with great interest the CLINICAL MEDICINE. What pleases me particularly is your orientation directed toward the practical, your understanding of the difficulties and trials to which the general practitioner is exposed and your aim to aid the man engaged in general practice in a simple yet scientific manner.

Our periodicals (German, Swiss, French) are generally too "academic", too much the organs for professors and instructors, and the general practitioner is neglected. The practical difficulties in medicine are often not appreciated or are misjudged by the university teachers, which is natural, for to them there are only diseases which must be scientifically investigated and then only to be combated. But for us practical physicians in rural districts there are sick human beings whom we must help. These are two different propositions which must be mastered in different ways. It seems to me that your monthly can be exceptionally valuable to the general practitioner, provided he reads it and studies it with care.

I am always reading your "Surgical Seminar" with great joy. I have been desirous for some time past to participate, but did not do so because I assumed that my solutions would arrive too late; but I see in the June issue that you are disappointed in the participation by the readers

and that you threaten to cease publication of the Seminar. In order to do my share and to avert this bad ending, I will try to discuss surgical problem No. 7; not because I am in a position to submit a clear-cut diagnosis, but to show you, honored colleague, that there are physicians in Switzerland who appreciate your meritorious labors. Therefore—*in medias res.*

I begin with the statement that I happen to be, at this moment, on my vacation, and that I have no suitable reference book at my disposal, to read up on similar cases, and I am therefore entirely thrown on my personal experience and limited knowledge; therefore please treat my small contribution with consideration.

One thing only is certain to me and that is that we have to deal with a brain disease, palpably on the left side. This is accounted for by the increased reflexes (Babinski, Gordon, Oppenheim, patellar reflex) especially on the right side.

Nystagmus towards the left, inclination to fall to the left and adiadokocinesis cause me to think of a left-sided focus in the cerebellum, as does the sensitiveness at the occiput.

The etiology appears to me obscure. Do we have to deal with an abscess, a tumor or tuberculosis?

The normal temperature and normal pulse until the end and the duration of the affection render improbable an inflammatory process (meningitis; encephalitis).

At first I thought of an abscess subsequent to an otitis media or of a metastasis following sinusitis, but on due deliberation nothing speaks for either condition. There is no fever, no acceleration of the pulse, no pains in the ears. Finally, nothing else is left but to accept a tumor; choked disk and the other neurologic symptoms being in accord with such a diagnosis, while the richness of cells in the spinal fluid again speaks for an inflammatory process, with the result that I would not completely exclude the possibility of a gradually developing abscess (perhaps following influenza) with secondary rupture into the left ventricle. In view of the negative etiology tuberculosis can be excluded.

The therapy consists of trephining and search for a cerebellar abscess or tumor. As a palliative measure lumbar puncture is indicated.

In conclusion please pardon my use of the German language as I master yours too little to make use of it.

Discussion by Dr. John Clark, Latham, Kansas

I cannot link the headache with any ordinary acute or chronic condition. The normality of pulse, respiration and temperature; the negative urinary findings and absence of evidence of disease of the thorax and abdomen, place this case somewhat out of the ordinary. A mercurial purge usually relieves in the absence of organic disease; in this case it failed.

The man is at an age when the accumulated but unidentified things produced in every day life flare up, as it were, and remain a puzzle until the end. Examination shows that he is not acutely ill. His mild and intermittent headache increases, causing him to seek relief, and after an illness of one month, he dies suddenly.

The neurologic tests show spasticity which points to trouble in the pyramidal tract. The Babinski means a lesion there, with motor tract disturbance; ankle-clonus, too, means a change in the pyramidal tract. Oppenheim's sign is seen in spastic conditions. The increased patellar reflex also suggests pyramidal trouble; Gordon's paradox means motor tract disturbance. The impaired coordination, the tendency to fall to one side and the inability to arrest motor impulse point to an interrupted sensory transmission to the motor area. The nystagmus points to cerebellar trouble. The choked disk, taken with all the other signs, means pressure somewhere at the base of the brain. The stiff muscles of the neck, the projectile vomiting and the occipital tenderness do not point to any definite location in the brain; they accompany lesions in the cerebellar tract, as do the high red count and the spinal fluid with its great pressure and high cell count.

Grouped, these things mean one of five things: abscess, tumor, meningitis, thrombus or cerebral hemorrhage.

All have a few things in common, such as headache, vomiting and choked disk. The first difference appears in studying the etiology, which varies in each affection enumerated. Abscess is exceedingly rare when not associated with infection elsewhere in the body; tumors are seldom infective and have no known cause; meningitis has a decided onset and, if not epidemic, is associated with other acute or chronic affections; while thrombosis and cerebral hemorrhage would have evident impairment of the heart or great blood vessels, with

lues, alcoholism or rheumatism in the background.

Accordingly, if we have here a tumor, we must consider whether it is a sarcoma to fit in with the scheme as described; but this is so seldom seen that I would question it. I do not know of any positive way of identification. Furthermore, the history does not point to tumor—there has been no giddiness, no epileptic attacks and no preceding vomiting or other signs of brain pressure. The headache, vomiting, choked disk and ataxia, or other signs of pressure, are all too late in their appearance to speak for tumor. A cerebral abscess may exist for some time without betraying its presence, or the signs may be too trivial to aid in its recognition (normal pulse and temperature), and a tumor may develop a low grade fever at the end.

The rather uncertain history of 'flu' and sinusitis suggest cerebral abscess, but sinus extension affects the frontal lobe while in this case the trouble appears to be at the base. His other symptoms and signs look more like abscess than anything else.

Assuming that it is an abscess, what shall we tell such a patient? I think it is proper to submit that a surgical exploration is indicated, but we must be very guarded in the prognosis, for much depends on the site, extent and possibility of drainage; though it must be remembered that apparently hopeless cases have sometimes lived. In this case there is little hope that can be held out because of the location. Possibly, if the choked disk had been found earlier, an exploratory operation would have been justified. I am just wondering what a slow spinal drainage would have done for him. The attending physician was perhaps right in avoiding energetic measures, and the thought suggests itself merely as a working problem.

Discussion by Dr. F. S. Bobbitt, Cashion, Okla.

As this disclussion is open to thinking readers I feel I will be excused if I happen to miss the bull's eye, for there are mighty few thinkers.

Seriously, the problem is a very interesting one, and in my opinion, presents the clinical picture of acute suppurative encephalitis, secondary to sinus infection or, possibly, oral sepsis.

The choked disk, the projectile vomiting and the slow pulse would indicate brain tumor; and that applies also to the other signs mentioned in the problem, e.g. Babinski's, Gordon's and Oppenheim's. All these phenomena would be present in a brain abscess as well as in tumors of the brain.

The history of influenza, sinus involvement, short duration of the trouble and its sudden termination in death, together with other signs and symptoms, point to a brain abscess which ruptured into a ventricle, causing sudden death.

The treatment is purely surgical. While application of cold to the head and the administration of cathartics and certain other drugs are good measures, they will not avail in a curative sense.

Discussion by Dr. E. C. Junger, Soldier, Iowa

The present problem is really an interesting one to internist, neurologist, surgeon and general practitioner—the only man who would not get a thrill out of it is the gynecologist, but he has troubles of his own.

I believe, after a review of the symptoms and diagnostic signs, that the patient suffered from encephalitis, resulting from some infection, which process spread to the brain tissue proper. I explain this by the slow progress of the case; the apparently symptomless periods; the irritations producing, periodically, intense pains, dizziness, hallucinations, emotions, etc., all of which are due to a progressive process of degeneration.

In this connection I recall a patient with almost identical symptoms in whom I had great difficulty in locating any organic lesion, with the difference, as compared with the present case, that a good oculist assured me there was no intracranial pressure. The radiograph showed nothing in the way of a growth.

I performed a decompression operation in the hope of affording him some relief, but the result did not last long. The case ended as many of this class end—in death.

While this case interests specialists, it is the general practitioner on whom falls the first burden of a diagnosis and proper advice; and it is for this reason that we cannot have too much light and an exchange of thought on these and similar problems. The Seminar is doing splendid work in that direction and I am always glad to have an opportunity to submit my own thoughts for what they are worth and to see what others think. The analyses by the editor of the Seminar are highly instructive and certainly

assist us in arriving at a definite conclusion, when one is at all possible.

Discussion by Dr. H. O. Strosnider, St. Francisville, Mo.

To me the blood count of this patient does not show that he had an infection by the cocci group, which caused his death, but rather a bacillary infection.

The Wassermann test proved negative, but this in itself is meaningless—at least one cannot positively rule out syphilis.

The pressure of the spinal fluid and its high cell count betray, of course, brain or spinal trouble, for in normal spinal fluid one finds only from one to five lymphocytes. In meningitis and in cerebral lues a large number of lymphocytes is the general rule.

It is helpful to shake the spinal fluid in a test tube to see if it foams. Normal fluid does not foam. The fluid should have been centrifuged for microscopic investigation and should have been cultured, for a large number of bacteria are easily demonstrated by both methods. Of additional value is the submission of the spinal fluid to the Ross-Jones or Fuchs-Rosenthal test for globulin. Finding of a considerable quantity of globulin demonstrates spinal infection or spinal disease.

On the other hand, you would get a clinical picture, as described by Dr. Porterfield, in a case of brain tumor, in which case a too sudden release of spinal fluid may cause sudden death.

As for the exact diagnosis and treatment, I think I would consult a brain surgeon and let him decide on the diagnosis and therapy, for the case is not one for even a general surgeon with merely theoretic knowledge in the recognition and management of brain lesions.

Discussion by Dr. B. B. Parker, Allerton, Iowa

I will try to limit the discussion to the expression of an opinion on the diagnosis of this case and the treatment indicated, without entering into an analytical study of each particular symptom or even group of symptoms, for the etiology, as obtained by the history of the case, and all other available factors must be utilized to arrive at a decision.

I think one is justified in considering the influenza and sinus infections as having a bearing on the case, with the result that a secondary abscess of the brain, of nasal origin, suggests itself.

If this be so, the only measure that promises to prove of benefit to the patient is prompt drainage of the abscess, and I know of no other measure than cranial surgery that will save life.

The precise location of the abscess is always a difficult matter, and one should never neglect to obtain expert neurologic assistance to this end.

Discussion by Dr. M. O. Robertson, Bedford, Indiana

This patient must have had a tumor of the brain, though it seems to me abscess should also be considered. The poor condition of teeth and history of sinusitis would point to infection rather than tumor. The lack of temperature elevation is frequent in brain abscess, and doesn't argue against it at all. However, the white blood count does not indicate an infection, but a differential count shows polynuclear leucocytosis with no general leucocytosis, which is present at times in a beginning pus infection. But as this would be an infection by metastasis or extension from the sinus, there would be a leucocytosis present, in my judgment. Also, I would hardly expect choked disk in abscess.

The choked disk, focal symptoms and projectile vomiting point decidedly to tumor, as does the severe headache. As there were only leg symptoms the location must have been in the right leg area on the left side of the brain, with slight involvement of the left leg area, also.

Solution by Dr. Frank Wm. Porterfield, Waterloo, Iowa

In this case the diagnosis agreed on, after the general examination was completed, was brain tumor, probably cerebellar and probably left sided.

The autopsy report follows:

Glioma of left cerebellar hemisphere with compression of the medulla and pons, both being atrophied; marked general venous engorgement with cyanosis; multiple submucous and subserous hemorrhages; extreme hypostatic pulmonary congestion, with edema and hemorrhages; fibrosis and calcification of left adrenal—compensation in right; slight hypertrophy of the hypophysis; hemorrhage into left ear; slight hypertrophy of both ventricles; old pleuritic adhesions; adhesion of liver to diaphragm.

The above report is submitted to the Seminar as a basis for remarks in connection with the discussions.

Editorial Comment

I have already expressed my personal appreciation of the courtesy extended us all by Dr. Porterfield in presenting to us a case which leaves us in no doubt. One is handicapped in a scientific discussion when one knows the solution of a problem, because human nature tends to become prejudiced by certain impressions. Naturally, the diagnosis IS tumor of the cerebellum and, naturally, it IS to be localized on the left side, but the symptoms and signs all pointed to a growth of some sort in that locality.

I am particularly glad to be able to comment on this case, which I have held up in order to treat it in the manner it merits, because only lately one or two readers have seen fit to criticise this department by suggesting that some circumstances and experiences are imaginary, for the purpose of producing artificial conditions for therapy, which would not be encountered in actual practice.

The editor of this department has been in active surgical practice for a goodly number of years and did his first trephining over thirty years ago. He has not always practiced in the hospitals of a large city, but has seen something of professional life in a small town without hospital facilities. He has been a student of field surgery, as differentiated from military surgery in hospitals of an established character.

I am not an ill-mannered man because I cannot accept certain articles (an allusion to my remark in the August issue, on page 548, that some contributors do not stick to the subject), and while I never did and never will pose as an authority, I have sufficient scientific training and actual experience as a general surgeon—and I do not except brain surgery—to be able to decide when a manuscript has been prepared from a real desire to participate or when one merely sends in talks of a rambling character.

Hardly a real manuscript comes to my desk but requires some changes; which is quite natural, for my own manuscripts are often corrected by Colonel Lake, and I correct Colonel Lake's manuscripts when he writes something for this department. I have little time to write letters, but this class of criticism, based on a misunderstanding I hope, has come to me several times, and I merely embrace the opportunity presented by this discussion to say this: that if any contributor is offended because I do not happen to agree with his diagnosis or treatment, that contributor has a strange notion of the function of a department editor and of the purpose of the Seminar.

To revert to the present problem; I think all readers will admit that the discussions have been unusually good and show a deep interest in the subject.

I feel that every one was justified in accepting the anamnesis as indicative of a brain infection rather than a brain tumor. An abscess *is* a brain tumor and produces symptoms and signs identical with those produced by a real tumor.

The nystagmus and adiadokocinesis point to cerebellar localization; and the right-sided Babinski to left-sided involvement. The choked disk shows that treatment is almost too late.

Should operative treatment have been undertaken? If consent of the patient or his family could have been obtained—I say, yes.

Cerebellar surgery is frequently successful. We have seen splendid results from the removal of cerebellar cysts, the nystagmus and ataxia disappearing when the patients leave the bed, and, unless a tumor is malignant and diffuse, so that it cannot be shelled or dissected out in its entirety, one can say that surgery is the only rational measure.

I am not so sure that central lues would not show a positive Wassermann of the spinal fluid, and I think a negative Wassermann of the fluid can be accepted as definitely ruling out luetic infection, which is not the case with the blood test; though my experience has been that when there is active lues, the blood Wassermann is almost invariably positive, except in the first stage.

This subject is too important to be dismissed as an editorial comment, and I have confined myself to an expression of an opinion merely, because Dr. John Clark's splendid contribution has really been an editorial preachment.

However, I am planning to organize another section for the Seminar, when this and similar problems can be handled in greater detail.

Discussion of Surgical Error No. 1

Recapitulation. This problem or exercise was published in the July issue. Essentially the situation is this; a general surgeon in a large city has brought to him a man of advanced years, suffering from prostatic

hypertrophy, whose case had assumed an aggravated aspect of urinary retention, necessitating catheterization more frequently of late than during the preceding period.

The physician who had attended the patient urges a perineal prostatectomy the morning after admission to the hospital.

The patient on admission appears in good general condition in spite of indications of arteriosclerosis. The urine shows some albumin and pus cells, the kidneys seem to be normal.

The operation is set for the next morning and is done. The night before operation, the bladder was irrigated with silver nitrate solution.

Technically the operation of prostatectomy proved successful. After a somewhat stormy convalescence the patient was discharged greatly improved.

The requirement calls for the error committed by the surgeon.

Discussion by Dr. D. A. Herron, Alta, Iowa

I do not think the general practitioner should tell the surgeon whether to do a perineal prostatectomy or a suprapubic operation. It is entirely within the province of the surgeon and he must decide whether the patient's condition demands one or the other method of surgical relief. To a certain extent the surgeon's skill, too, plays a role in the decision.

What is more important is the request of the general practitioner to do the operation almost immediately after admission to the hospital.

Personally I am inclined to keep this class of patients under observation and preparatory treatment for a more or less prolonged period varying from 3 to 14 days. In this period functional renal tests are made and the patient put in the best possible condition, generally and locally. My experience has been somewhat limited. We maintain a ten-bed hospital in this small town and are endeavoring to practice according to the best thoughts in medicine. While I cannot speak with authority, my opinion is given in the belief that it represents the best teaching. The Seminar is very instructive and I appreciate your efforts.

Discussion by Col. Charles B. Reitz, Palmerton, Pa.

As I am not a surgeon I cannot discuss the problem of prostatic hypertrophy with "impunity", though I do feel that a hurried operation may jeopardize the patient's life. In my opinion the mortality is too high to justify prostatectomy for ordinary difficult micturition, even when the condition is becoming progressively worse.

I should advise my patient to postpone operation as long as possible relying, meanwhile, on non-surgical methods to benefit the condition. I have obtained good results from the D'Arsonval current; indifferent pad on sacrum and high-frequency (insulated) tube in urethra, and one treatment a week suffices to maintain the urethra in a fairly serviceable condition.

In severe cases I instruct the patient in self-catheterization, but make the aseptic precautions so rigid that infection is virtually certain to be prevented.

That the D'Arsonval current is effective can be seen from the fact that, in patients in whom it was impossible to pass a bougie, a No. 15 glass electrode would go through under the current.

But if, after all, prostatectomy becomes necessary, I prefer the suprapubic route in two steps, an interval of two weeks being allowed between the cystostomy and the enucleation of the prostate; the period being utilized to drain the bladder.

Discussion by Dr. H. O. Strosnider, St. Francisville, Mo.

A surgeon commits an error when he operates upon a patient that a country practitioner sends to the hospital with an understanding that the surgeon must perform an operation in a few hours after the patients arrives, unless the operation is one that must be done at once to save life.

In a case like this man with hypertrophy of the prostate, the surgeon should have taken his time to see if he was in need of an operation, and if he was, what kind of an operation should be performed.

I always think of two things before I send an old person to the operating table; will he go through the operation, and will he live longer with an operation than without one?

If this case of hypertrophy of the prostate were a patient of mine, and it became difficult to catheterize him, I would use local anesthesia and open the bladder by suprapubic incision. I could then use irrigations to overcome bladder infection, and, as most of these old men are run down, you thus give them a chance to build up. If I thought it best to remove the prostate, I would

give him an H. M. C. tablet, hypodermically, and just as small an amount of chloroform as I could use, and remove the prostate through the opening made for the irrigation.

Some surgeons use the knife to remove the prostate, but they can peel out both prostatic lobes and remove them, with a sterile, gloved forefinger, in less time than it takes to tell about it. If surgeons would remove one lobe that way, they would never do a perineal prostatectomy again.

Discussion by Dr. Emil C. Junger, Soldier, Iowa

In the first place, the surgeon became the hired man for the practitioner who brought him the patient, instead of being the adviser and consultant. In the second place, he was in a terrible hurry and I am going to ask, in the same language that speed cops ask speeding automoblists, "Where is the fire?" All this may prove rather hard on the patient's longevity.

In the limited time available, the various blood, functional and urinary tests cannot possibly be accomplished, and thereby the patient is deprived of a service which may be essential in his case, with the idea of undertaking better preparatory measures.

There are, no doubt, a number of practitioners who would be quite content with a surgeon ready to suit their wishes, but that, of course, does not make matters right.

—

Editorial Comment

This problem is based on actual happenings. Some years since this happened to me personally, and I asked the doctor politely but firmly, "where the fire was", to quote Dr. Junger. He told me that he was in a hurry to go home, and that if I expected him to remain here in Chicago on a week's vacation I had chosen the wrong season. The end was that he went to another surgeon and the patient died on the fourth day, from sepsis.

Another case happened just as described in the problem and the surgeon in the case proudly pointed to the fact that the patient got well, and that the stormy convalescence happens often enough even in cases in which the preparatory treatment has been prolonged. That, of course, is relatively true.

While there is a moral and economic side to the problem, we are not interested in them as much as we are in the surgical side. I am even going a step farther and say that the past history of the case was sufficient to arrive at a fairly accurate estimate of the condition of the kidneys, and, while we may assume that they were normal, histologically and functionally, we do know that the bladder was infected, and that so formidable an operation as prostatectomy is apt to start a violent infection which may ascend, to produce a pyelitis or worse.

Now there are certain rules in surgery and the principal one of them is to disinfect the operative area. In this case part of the operative area is on the outside of the body and part on the inside—the urethra and bladder floor.

One or two irrigations with silver nitrate solution are not enough, and the time element comes in as the principal error.

Whether or not a suprapubic prostatectomy is preferable to a perineal one is a subject that has been thrashed out, some years since, rather violently, and neither side acknowledged defeat. There was no error committed in this respect, since I have just as much confidence in one as in the other method; though there are instances when a suprapubic operation is much preferable. The perineal route is advantageous under certain conditions, which need not enter into our discussion at this time.

The D'Arsonval treatment is new to me. I have tried x-ray therapy but the results have not been satisfactory.

Case Report by Dr. R. A. Hills, Russell, Iowa

A boy, aged nine, was seen at my office on a Monday forenoon. He claims to have eaten some meat, which he thought was stale, on the preceding Saturday. The next day he vomited a little but did not think medical advice needed.

The examination, made in the office, showed some tenderness over the stomach and to the left side. Pulse and temperature were normal. Unable to establish a definite diagnosis with so little evidence of disease the patient was given a stomach anodyne and sent home with advice relative to his diet.

The next day the patient was no better, vomited a little and had some pain in the left upper quadrant, which was relieved by the administration of an anodyne. A glycerine-salt enema was followed by fairly good results.

The following day a mass developed just above and a little to the left of the umbilicus and the pulse was 130, with a rise of temperature to 101° F.

On the assumption that we were dealing with an intussusception he was sent to the hospital, where the customary experimental treatment of reduction by enemata was given.

As this method produced no relief, he was finally taken to the operating room. A median incision revealed a large abscess with the appendix at the bottom. The patient died 24 hours after the operation.

The peculiarities of this case were that the patient at no time was in severe pain; vomiting was easily controlled; he never went over 24 hours without a bowel movement; and the increased temperature never exceeded 101° F.

Requirement. Dr. Hills having kindly submitted the above for use as we deem best, and being complete with reference to diagnosis and postoperative outcome, I feel, nevertheless, that this report is not only interesting as a report, but that it has phases which can be discussed to mutual advantage. The requirement consists of a free discussion.

Uterine Fibroids

REMEMBER that the portion of the uterus above the internal os is the part principally concerned in gestation. While fibroids may be found in the cervix, yet they are more frequently found above the internal os.

KEEP IN MIND that fibroids are benign, though they may undergo various secondary changes.

REMEMBER that they may atrophy at the menopause, or become calcified from the deposit of lime and salts. Dilatation of the lymph-spaces and cyst formation may take place.

REMEMBER that submucous fibroids may become pedunculated and form what are known as uterine polypi; this variety may become infected, and suppuration take place. Remember also that malignant changes occur in the fibroid, and we have carcinomatous and sarcomatous degeneration.

REMEMBER that all fibroids are not large, and that they vary in size from a small shot to enormous tumors weighing several pounds.

REMEMBER that they may occur singly, but that they are usually multiple.

REMEMBER that large abdominal fibroids may cause cardiac hypertrophy of the left side, and eventually fatty degeneration. The liver may also undergo fatty degeneration.

—*Bernays*: "*Golden Rules of Gynecology*".

Clinical Notes and Practical Suggestions

The Value of the Cystoscope

IN CONSIDERING the use of the cystoscope and its value, we must include any instrument which enters the urinary bladder, carrying its own illumination, in the form of an electric bulb—as the Brown Burger instrument—and those using a reflector or headlight—as employed in the less commonly used direct cystoscope, of which that bearing the name of Kelly is an example.

Difficult Diagnoses

Conditions of the prostatic urethra, such as impacted or residual calculus; cysts of the colliculus; papillomatous or simple hypertrophies of the vesical neck, in the form of flat or stellate projections, can be determined only by cystoscopic examination or the use of the posterior urethroscope. The existence of the unusual vesicoprostatic fistula can be proved only in this manner. Cystitis *per se* (not an infection of the upper urinary tract) is easily diagnosed, but the persistent case demands cystoscopy to definitely exclude the kidneys.

Cystoscopy offers a differential and final diagnosis in all infections of the urinary tract. It is the only maneuver known for the localization of infection of one or both kidneys, bladder or prostate and vesicles. The presence of calculi, tumors (both the flat carcinomatous and the papillomatous, simple and malignant) is determined by inspection of the bladder. The condition of the trigone; the degree of inflammatory reaction; the presence of any diverticuli or interureteric bar, or any enlargement of the prostate or carcinoma of that organ and its localization are determined in as casual a manner as one would inspect the mouth and note the findings present. Ulcers, if present, are noted as to their number, position and character. Hematurias are easily localized by the use of the cystoscope, excluding conditions of the penile urethra, prostate and posterior urethra that are self evident. If caused by a calculus, its presence and the absence of blood in urethral catherization clears the upper tract of any involvement in the process.

Ureteral Conditions

There is no more interesting picture than to see a ureteral orifice spurting blood. Ureteral catheterization is here used merely to collect specimens and to determine the degree of functioning of the respective kidneys.

Anomalies of the ureters, reduplications, absence and various types of orifices are noted in ureteral catheterization and ureterography (x-ray examination).

The presence of calculi, kinks, angulations and strictures of the ureter are determined by cystoscopy, plus ureteral manipulations with various types of catheters and bougies and by ureterography, with and without the use of an opaque medium such as sodium bromide, 25 percent, or sodium iodide, 10 to 20 percent.

Ureteral catheter drainage, via the cystoscope, gives us a differential kidney specimen for chemical, microscopical and biological examination and comparison with that from the opposite side.

The use of dyes, such as phenolsulphonphthalein and indigocarmine, injected intravenously or subcutaneously, and noting their time of appearance in the urine and percentage excretion, over measured periods of time, is of further value to complete a diagnosis.

The capacity and anomalies of the kidney pelvis and the presence of inflammatory changes, calculi and tumors are determined by ureteral catheterization and by pyelography, with and without the use of opaque media.

The condition of the kidney proper—its functional capacity, the size, shape and the existence of calculi, can thus be readily determined. Pyonephrosis and tuberculous, pyogenic or other chronic inflammatory process can also be thus ascertained; and

the size, location and nature of a tumor can, with rare exceptions, be determined.

It will thus be seen that scientific urology, including a consideration of the cause of any condition of the upper urinary tract, ureters, bladder and prostate, demands the use of a cystoscopic instrument, either for diagnosis or for localization of the signs or symptoms presenting. No claim is made for the superiority of any particular cystoscope, nor are any conditions of the urinary tract with their symptomatology enumerated.

In considering the use of various operative maneuvers, such as the obtaining of specimens by the use of forceps; the implantation of radium and radium emanation; the treatment of ureteral calculi and anomalies of the ureter; bladder fulguration; catheter drainage and lavage with various medicaments, the cystoscope is the instrument necessarily employed.

In conclusion, it is suggested that the cystoscope be more generally and liberally employed in the diagnosis of urological cases. More cases will thus come to the operating table with a correct diagnosis, properly timed for operation, and not in the haphazard manner of the past, where kidneys were needlessly sacrificed and where many patients were doomed to invalidism (as in unilateral kidney lesions, or where a solitary kidney was removed or a fused kidney sacrificed) because we were not sure of the function or status of the other kidney; cystoscopy being either unknown or the surgeon having failed to employ it in diagnosis, through ignorance, carelessness or neglect.

ABRAHAM MATTES, M. D.,
Visiting Surgeon, Genitourinary Division, Charity Hospital; Lecturer, Genitourinary Diseases, Postgraduate Department, Tulane University Medical School.
New Orleans, La.

HOT WEATHER HEALTH HINTS

When the temperature outdoors reaches 85° F. and climbs above, most of us seek the cooler places; the shady sides of the streets, the windy spots in the vicinity of high buildings, the parks and those places indoors where artificial cooling is effected, as in the theater and similar places. This practice of keeping cool in hot weather is in accord with good, common sense.

The body has only a limited means for maintaining the temperature of the blood at normal. If these means are forced to overwork for a considerable period of time, the temperature of the body begins to rise and the regulatory mechanism of the body becomes ineffective and, as a result, a collapse occurs, commonly known as a heat stroke.

With the present heat wave upon us, and the approaching season of more hot days close at hand, all persons should observe this simple and healthful inclination. When outdoors, find the shady and breezy spots. If you prefer to be indoors, go to a theater or other similar place where artificial cooling systems are in operation. During the time spent in the theater, the cooled air acts as a stimulant to the body and the performance is a means of improving the mental status.

DR. HERMAN N. BUNDESEN,
Health Commissioner of Chicago.

MOTION IS NOT LIFE

I have been waiting and watching for a reply to the article by C. L. Redfield on "Vitalizing Biology" (CLIN. MED., October, 1924, p. 701) and wondered why medical men do not discuss such subjects oftener and, especially, why permit a paper like that to escape criticism.

"It is not necessary to postulate some mind-stuff or imaginary vital principle to account for what we find in living organisms." But, in three and a half pages, he did not find the characteristic activities of living things.

"When we apply the various tests known to physical science", etc. But, who is satisfied to apply only those tests that relate the activities of life to the activities of a windmill.

Life is not a form of motion that is transferable into another form of motion; it can not be described as stored motion and, while the paper is a creditable one as the production of a mechanic, it has no place in a medical publication.

JAMES JOHNSTON,
Los Angeles, Calif.

[We are very happy to publish Dr. Johnston's letter as it delights us exceedingly to find that our articles are stirring up thought and arousing comment.

That we do not wholly agree with the doctor's criticism matters not at all. *We* felt that Redfield had *admitted* that he did not know what Life is, in the ultimate, even

though he feels sure that, whatever it may be, it is *some* form of "stored motion".

In the article in question, the author stated: "Saying that life is stored motion does not mean that stored motion is life"; and, "Power can build mechanisms out of unorganized material, but no mechanism can produce power out of itself"; also, "We never see the protoplasm of a dead animal producing life".

We felt that Redfield's arguments were sound and interesting and forward-looking. Read the article again and let us know what you think of it.

If you want to go still further into this fascinating field, reread Dr. Gage's article, on page 386 of our June, 1925, number and let us hear what you think of that.—ED.]

DIETETIC MANAGEMENT OF CARDIAC, VASCULAR AND RENAL DISEASE

Proper dietetic care of the cardiac, vascular and renal invalid is largely dependent on the diagnostic and therapeutic judgment of the attending physician, and the diets required may vary widely for different patients. Numerous factors contribute to the undesirability of arbitrarily fitting certain type diets to certain type diseases. These factors include a careful consideration of the functional capacities of the digestive organs, heart, vessels and kidneys, which vary in different patients, and may even vary greatly in the same patient within short periods of time. Individual likes and dislikes, idiosyncrasy and tolerance for certain foods must be considered.

Many functional cardiac disorders, as well as mild, well compensated valvular disease, may require no dietary regulation. In cases, however, where the circulation is maintained only by excessive cardiac effort, as in chronic hypertension and in long standing or extensive valvular disease, an effort should be made, through diet, to lessen the cardiac burden. This dietary regulation is even more important in cases of actual myocardial degeneration.

Organic Heart Disease

The processes of digestion, assimiliation and excretion demand considerable energy, and if not properly controlled, may add to the burdens of a failing heart. Passive congestion of the digestive organs necessitates a careful selection and limitation of food and drink. In general, foods readily digested and producing waste products readily excreted should be chosen. The following rules, then, should be observed in regulating the diet in organic heart disease:

1.—The diet should be relatively dry and easily digestible.

2.—Foods causing flatulence should be avoided. These foods will vary in different individuals, but in general, beans, peas, cabbage and starchy foods are more liable to produce flatulence.

3.—The heaviest meals should be taken in the morning and at noon. Supper should be light. Meals should be about five hours apart and no solid food taken between meals.

4.—Fluids should be restricted to 1500 Cc. if edema is absent. In the presence of slight edema, fluids should be limited to 1000 Cc. If edema is marked, with effusion into the serous cavities, fluids should not exceed 800 Cc. If the edema persists or increases, the Karell diet may be tried. This consists of giving 200 Cc. of skimmed milk at 8 A. M., 12 noon, 4 P. M., and 8 P. M., for from five to seven days. The diet is then gradually increased, adding first toast, then vegetables, one or two eggs and, finally, a little meat.

5.—Salt should be restricted, as it increases desire for liquids and also withdraws fluid from the tissues into the blood stream, thus increasing the volume of the blood, and adding to the cardiac burden.

Vascular Hypertension

The following dietary instructions are given to patients with vascular hypertension. Adherence to this regime is beneficial for all individuals past fifty years of age, whether or not they are suffering from increased vascular tension:

1.—Restrict fluids moderately, taking about 1500 Cc. daily. Drink a glass of hot water just before breakfast, to cleanse the stomach and upper bowel and stimulate peristalsis.

2.—Limit coffee or tea to one cup daily, preferably at breakfast.

3.—Avoid overeating. A general quantitative reduction in diet is important. If a general reduction in diet aggravates or induces constipation, harmless bulk in the form of bran, fruits and green vegetables may be added.

4.—Avoid salty foods, such as ham, bacon, and salt fish. Do not put salt on food.

5.—Eat meat (fish, flesh, or fowl), only once a day, and then only a small portion.

6.—Do not eat more than one egg a day.

7.—Avoid all highly seasoned and spiced foods and restrict sweets.

8.—Diet should be composed largely of green vegetables, potatoes, fruits, cereals, rice, hominy, spaghetti, bread (especially whole wheat and graham) and limited desserts.

Myocardial insufficiency, or impending decompensation, will necessitate modification of the diet along the lines indicated for heart disease.

Chronic Interstitial Nephritis

In these cases, delicate judgment may be required to determine the fluid volume to be allowed. Too much fluid will burden the heart and cause strain on damaged vessels; while too little fluid will impair the dilution and excretion of toxins through the kidney. In this disease the kidneys are unable to excrete concentrated urine.

The fluid should average between 1500 Cc. and 2000 Cc. daily, if there is not excessive hypertension—that is, if the systolic pressure is below 200 mm. Protein should be restricted to 50-80 Gm. daily and salt should not exceed 5 Gm. The total calories should be limited to 2000-2500 daily. The diet then, should be reasonably balanced, easily digestible, with moderate protein and salt restriction and a general quantitative limitation. It is most important to preserve heart muscle nutrition and compensation, and any modification of the diet will depend largely on the efficiency of the myocardium.

Chronic Parenchymatous Nephritis

A normal fluid intake is desirable, if there is no edema. If edema is present, allow only 1000 Cc. of fluid daily, and decrease or increase as the variation in edema indicates. Forcing fluids in these cases sometimes promotes diuresis and disappearance of the edema, apparently due to the fact that the kidney can excrete salts in dilute solution, but cannot eliminate concentrated salt solutions. It is believed that forcing fluids should not be tried unless restriction of fluids fails to bring about a definite subsidence of the edema. Protein should be limited to 50-80 Gm. daily. Salt should be restricted, and obstinate cases of edema may require a strictly salt-free diet, no salt being used even in the cooking of the practically salt-free foods. (Occasionally restriction of salt increases the edema, and 5-10 Gm. of salt in such cases may act as a diuretic.)

Epstein advanced a theory that certain cases of edema with albuminuria differ from the usual picture of chronic nephritis, and that in these cases the edema is due to depletion of albumin, and he, therefore, advocates a high protein diet. These cases suitable for high protein diet are said to present an alteration of the normal ratio of albumin to globulin in the blood, and a high blood cholesterol. He advocates 120-240 Gm. of protein, 20-40 Gm. of unavoidable fat and 150-300 Gm. of carbohydrate. Consensus of conservative opinion is that cases responding favorably to such treatment must be extremely rare, and that while in some cases disappearance of edema may indicate improvement, the blood nitrogen will be increased and the phthalein excretion diminished; as has been demonstrated in cases checked with blood nitrogen determinations and phthalein excretion tests.

Acute Nephritis

In general, the diet should be adequate for the needs of the patient, and yet demand as little excretory function as possible, on the part of the kidney. The following general rules should be observed:

1.—Marked restriction of protein and salt and moderate restriction of fluids. The protein should be reduced to 20-30 Gm. and the salt to 2-3 Gm. Marked edema may call for strictly salt-free diet. Fluids should be reduced to 1000-1500 Cc.

2.—A milk diet may be given or, if greater reduction of protein and salt is deemed advisable, a diet of fruit juices, thin gruels, crackers, toast, rice, and potatoes may be substituted.

3.—If much fluid is lost by vomiting, diarrhea or sweating, it must be replaced, to dilute the toxins and facilitate the excretion of waste products.

4.—After the acute symptoms have subsided, the diet may be increased, depending for selection of foods, on the presence and relative severity of nitrogen or salt retention.

Conclusion

No attempt has been made to give detailed advice or set dogmatic rules, but only to present general plans for the logical dietary treatment for cases of cardio-circulatory impairment and renal insufficiency. It has been the author's intention to outline certain dietary principles which

may serve as a flexible guide to the dietary management of these closely associated and often overlapping pathologic conditions.

JOSEPH R. DARNALL,
Capt. Medical Corps, U. S. Army,
Ft. Benning, Ga.

Reprinted from *J. Lab. & Clin. Med.*

"BANANAS"

In reference to the abstract "Bananas" from the *A. J. Dis. Child.* (CLIN. MED., May, p. 336), I wish to say that the aborigines in the countries from which that fruit comes are very careful to peel off the inner thin skin before using. This lighter skin contains the alkaloid solanine, the same poison as is found in green potatoes. Such being the case, I reason that, in overripe bananas, the solanine is absorbed into the main body of the fruit and causes disagreeable symptoms and some fever.

In my opinion, all fruits should be cooked. Unripe bananas are eaten roasted, baked, boiled, fried and also used as an ingredient of soups and stews.

L. M. YOUNG,
San Francisco, Calif.

[We have never seen any untoward symptoms follow the eating of thoroughly ripe bananas which were still sound; and we certainly feel that there is a definite place and need for ripe, raw fruits in the diet. We are, however, glad to give Dr. Young a hearing, and if our readers will follow his suggestions as to the use of cooked, unripe bananas, they will add several very pleasing dishes to their menus.—ED.]

ELEVEN CAUSES OF INDIGESTION

Eleven causes of indigestion are listed by Dr. Jesse Feiring Williams of Teachers College, Columbia University, in the new revised edition of his "Personal Hygiene Applied", published by W. B. Saunders Co.

These are the causes Dr. Williams lists:

1.—Improper foods. This may refer to the choice of the food or to the combination chosen.

2.—Improper cooking of the food. Food to be cooked should be cooked thoroughly, especially vegetables, breads and pastries.

3.—Food idiosyncrasies. Examples are oysters, shellfish, fish, buckwheat cakes, strawberries and chocolate.

4.—Physical fatigue. If tired, one should rest before eating or eat very lightly (better not eat at all).

5.—Worry and depressing emotional states.

6.—Rapid eating. Important to avoid places that are noisy. Freedom from a sense of hurry is essential to correct eating.

7.—Drinking cold water before eating warm food at mealtime.

8.—Overeating. Large amounts of food may effect only slightly the coefficient of digestibility, but they do retard the ease and rapidity of digestion. Snyder found, however, that protein was 7 percent and fat 6 percent more completely absorbed in medium amounts of oatmeal and milk when he compared medium and large amounts of this ration.

9.—Constipation. Lack of evacuation of the bowels is frequently a cause of improper digestion of food.

10.—Defective teeth. This cause may act by not permitting thorough mastication; it also may be effective through the disturbance of the condition of the stomach owing to the presence of pus material from the teeth.

11.—Various diseases. Indigestion may be a sign of appendicitis. When the indigestion is prolonged, it may be a sign of gastric ulcer, and in an elderly person of cancer of the stomach.

Reprinted from *Hygeia* for July, 1925.

TOO MUCH SUN

Any traveler who gives thought to the matter must be struck by the prevalence of red, orange and black among the head-covering used by the lighter colored inhabitants of warm and tropical climates.

Nature, too, it will be noticed, uses the same colors in birds and other creatures exposed to a powerful sun, though it may seem odd that she should clothe Spanish fowl, for example, in black, a color so well known for its heat-absorbing qualities.

But a few years before the war, Colonel Maude hit upon the explanation, so obvious when pointed out, that these colors give practical immunity from the dangerous actinic rays of the sun, which are, in fact, the same ultraviolet ones that compel the photographer to darken his window with red or orange, or to use a red light, when handling his plates and to place a black cloth over his camera when exposing them.

The same instinct that has taught the Madrasee to protect his head with a non-

actinic red *puggaree*, has taught others to guard the abdomen with red, orange or black *cummerbunds*.

In the Mediterranean we see the Turk and Egyptian protected by the red *tarboosh* or fez. And, while the Greek wears a red skull cap and a scarlet sash, the Spaniards, Italians and Maltese, of both sexes, wrap themselves in black hats and mantillas.

The Senussi and other Arabs protect themselves by black face cloths or by rubbing the skin with red or black earth.

The Negro, with his black skin, is protected by nature, and so when he dons garments he selects white for coolness.

Innumerable other instances present themselves on consideration to anyone who has been in a hot climate. But the socalled "tropical" helmet, as ordinarily sold, lined with green (which is cool to the eye but otherwise valueless), or not lined at all, as also the white, or unlined straw "boater" and panama of our English summer season, are standing examples of the slowness of so many British manufacturers to grasp a new idea.

Among Anglo-Indians the facts are being gradually appreciated, and the solution of the problem is being assisted by the manufacture of various clothing fabrics with red backing.

These things are not understood in the British Isles and America, and mothers can do much to protect themselves and their children when playing in the sun by providing a red lining to their hats and having a strip of turkey-red tacked down the line of the spine inside their thin white frocks.

Baby's milk keeps much better in red glass bottles or when shielded in some other way from the injurious rays. This also applies to the larder, which is much better with a "photographer's" window.

The girl who suffers from freckles does well to carry a red parasol of not too flimsy a texture.

B. SHERWOOD-DUNN,

Nice, France.

PRESYMPTOMS

Symptoms which, with operations and birth and girth control, have been monopolizing the conversation of dowagers on summer hotel verandas, are about to lose caste in favor of presymptoms.

Presymptoms have to do with the lack of those mysterious substances, vitamines A, B and C; the obscurities of the endocrine glands, such as a woman's failure to reduce even after eliminating breakfasts, potatoes and bread; the wherefores of intestinal stasis or constipation; the hidden causes of vagrant, lesser pains and aches; the reasons for a man's wind getting shorter; the whys of the tired feeling and the multitudinous activations that cause people to find themselves unaccountably depressed, confused, or in some way sorry for themselves.

The presymptom, then, is the precursor of the well-known symptom or complaint that a person waits for before consulting a physician and points the way to outflank oncoming trouble; its consideration affording the family doctor the only opportunity to help a person enfilade, dodge or repel disease.

This is not only possible by the recognition of presymptoms but actually happens frequently, as in the focal infection cases, where danger is removed by doctoring a bad, although painless, tooth. A sympton usually means that disease is already established and that changes have taken place in one's tissues in a more or less complete way.

The presymptom is, therefore, an advance notice of the symptom which is on its way, and the manifestation of a tendency which disturbs function and which, if left to itself, will go on, more or less insidiously, until it ends in some kind of organic change that will cause distress enough to be recognized as the symptom of actual disease. Therefore, heed the presymptom.

For every symptom there are a dozen presymptoms, the discovery of which would enable the family doctors and general practitioners to forestall disease and thus prolong life.

The presymptom oftenest encountered is constipation; next in order of frequency come susceptibility to colds and the "tired feeling"; then the results of disturbed nutrition like the lack of fat-soluble vitamine A; and, with less frequency, these are followed by evidences like backache, dizziness, and the headaches and lassitude of different intoxications.

The laboratory is needed to make the earlier diagnosis possible which leads to checking such tendencies as Bright's diseases, heart disease and other degenerative diseases, as well as diabetes and toxic conditions; but no health-promotion service can be effective without the sympathetic cooperation of practitioners and family physicians.

Life can not be prolonged merely by periodical health examinations, no matter

how thoroughly or perfectly the examinations may be made. The utmost results to be expected from such examinations are limited to the efficiency of the physician selected by the patient to treat him. The word "patient" need not always means the sick. Heed the presymptom. Give your doctor the chance to help you defend yourself against the attack of diseases which threaten all of us.

WM. G. EXTON,
Director, Longevity Service.
Prudential Ins. Co.

A CASE OF PHIMOSIS

I recently operated on an old man of 78 for phimosis. He had chronic myocarditis of the senile type, with considerable general edema. This was very marked in the penis and prepuce, also the scrotum. It was only with great difficulty that he could urinate at all, and it was impossible to introduce a catheter into the meatus.

I slit up the prepuce dorsally, so as to freely and fully expose the glans, but removed no tissue. It was done with butyn as a local anesthetic, with absolutely no disagreeable sensation. Catgut sutures were introduced, and the wound smeared with butesin picrate ointment. He got up at once, and moved around the house as usual. Although cautioned to keep quiet, the next day, without my knowledge, he drove, in a car, 30 miles to the city to attend a meeting of the board of a company of which he is a director, and back again the same day. Since then, he has been going about the same as ever, and has had no trouble whatever.

GEO. ACHESON,
St. Martins, N. B.

THE DOCTOR OF THE FUTURE A HEALTH COUNSELLOR

"The medical schools of many countries, especially, perhaps, those of North America, Great Britain and, to a less degree, Western Continental Europe, are facing several problems of curriculum, of teaching methods, of purpose and of aim. An American committee has been formed to examine the course of study in the United States and to recommend changes. This committee will be expected to find answers to such questions as these: What kind or kinds of doctors ought the medical school to turn out in response to the needs and demands of the public? What should graduates know and be able to do? How best can they be helped to master this knowledge and skill? How can they be given the right attitude toward their work?

"Probably three-quarters of all doctors today are general practitioners, that is, physicians whose aim it is to recognize diseases, to deal with all the more common maladies by advice and treatment, and to know when to refer patients to specialists. This general practitioner is at present facing many difficulties. The specialist tends to monopolize prestige and to receive relatively much larger fees. Laboratory and hospital facilities which the modern doctor ought to have are expensive and often inaccessible. Sanitation and preventive medicine are restricting and even eliminating diseases like typhoid and malaria which once afforded a good deal of practice. Free and pay clinics, school and industrial medical services, health insurance (under government auspices in Germany and England), hospital associations and all efforts to spread costs of sickness over large population groups, and other forms of social medicine tend to encroach upon what was once the exclusive field of the general practitioner. There are people who assert that this type of physician is doomed; that he will disappear because he cannot compete with the specialist on the one hand and with preventive and social medicine on the other.

"Such an outcome is to be viewed with concern. The well-trained, properly equipped, experienced general practitioner of ability, character and personality is a fundamentally valuable person. He is a good diagnostician. He sees his patient as a whole. He knows his peculiarities and circumstances. He can decide when to refer him to a specialist and when to protect him against the very real danger which is threatened by a narrowly specialist point of view. He cheers and encourages, warns and commands. He is not only a physician but a friend and counselor. The disappearance of the general practitioner would be a serious loss. The stimulating philosophy of individualism with its insistence upon independence, initiative, and ambition seems to be embodied in the general practitioner.

"He will survive only if he can win confidence and make a living. But he will have to meet the new conditions. He will have to submit to a measure of team-work in the use of laboratories and other re-

sources; he will be compelled to recognize the public demand for sharing costs of sickness and, most important of all, he must become a practitioner of preventive medicine, a counselor of health, a man who can recognize and correct the minor but remediable physical and mental defects which are so common. This will mean an increasing preoccupation with the normal and a knowledge of the effects upon health of diet, exercise, mental attitudes, recreation and family and social life. To train men and women for this reinterpreted and redirected function, the medical schools will be compelled radically to modify their aims and methods and to 'permeate the curriculum with the preventive idea.'"

From the Information Service of the Rockefeller Foundation.

SAFETY IN INTRAVENOUS MEDICATION

At the suggestion of Dr. Jay F. Schamberg, of the Dermatological Research Institute, of Philadelphia, Pa., the D. R. I. Adapter was devised to prevent minute fragments of glass or undissolved particles of the drug entering the vein in intravenous work.

When concentrated solutions are used with a Luer syringe, and even when larger quantities of water are employed, it is quite possible for minute fragments of glass-dust, dust in the water or undissolved particles of the drug to be carried through the needle. Such particles, while not large enough to be readily visible to the eye, may still be of sufficient size to cause embolism in the minute capillaries of the lungs or possibly other organs.

The adapter is made of glass and packed with sterile cotton; it is put between the Luer syringe and the needle and any minute fragments of glass, dust in the water or any undissolved particles of the drug are caught in the cotton filter.

After filtering in this way, if one removes the pledget of cotton and examines it with strong magnifying lenses, one may often note the presence of minute particles of solid material representing particulate matter of one kind or another, which would otherwise have gone through the syringe from the needle into the vein.

The filter should be boiled on every occasion immediately after use and a piece of sterile cotton inserted with a sterile forceps. It is quite important that this should be done on every occasion because oxidation of neoarsphenamine occurs on contact with any acid.

The adapter is made by Becton, Dickinson & Co., of Rutherford, N. J.

GOOD HABITS MAY BE TAUGHT

Tendencies toward thinking and acting in certain ways, which are called habits, are the outgrowth of training and experience. They are not inherited. We begin to form habits at birth and go on through life, forming them quickly and easily in youth, and more slowly and with difficulty as the years advance. The oftener the act is repeated or the thought is indulged in, the more lasting the habit becomes. Since habit-formation begins early and is more or less constant throughout life, it is of great importance that emphasis be placed upon the establishment of desirable habits.

A young child has certain characteristics that make the acquiring of new habits easy. For one thing, he is suggestible; that is, he accepts without reasoning about it anything which comes from a person he looks up to. "My father said so", or "My mother did it", makes a thing absolutely right for a little child. Again, a child naturally tends to imitate the words, actions, and attitudes of the people around him, and this makes it of the greatest importance that older people furnish him the kind of models they want to have copied. Furthermore a child wants to please those he loves and wants to have them say so. At first, it is only father or mother or some one in the immediate family whose good opinion he wants. Then it is the kindergarten or school teacher. Finally, at 9 or 10, the praise or blame of his playmates or of the gang leader concerns him more than anything else. When this stage is reached, parents should not be disheartened and think that their boy is developing into a black sheep. It is a perfectly natural stage which children pass through and which calls only for greater care in the selection of wholesome companions.

This attitude of concern regarding what other people think is a force that parents may use in developing right conduct. Rarely is a child found who does not care for the approval of some one, and training should make a child realize that it is to his advantage to win approbation for desirable acts. Praise for unselfishness, kindness and general consideration for others tends to perpetuate that type of conduct.

D. A. THOM,

Boston, Mass.

THE VALUE OF QUININE BIHYDROCHLORIDE COMBINED WITH PITUITARY EXTRACT IN LABOR

Having delivered more than one thousand cases of child birth, and having always striven to shorten labor by every conceivable means, I thought it might be of interest to readers of *The Practitioner* to record my deductions as to the method I found most successful in the majority of cases.

In the following remarks I deal only with normal vertex presentations, for abnormal cases always present their own specific complications. My aim is to indicate a method which will cause rapid and full dilatation of the os; it is then left to the practitioner whether he applies his forceps or not—meddlesome midwifery has its disadvantages, but to some its advantages are regarded as a blessing.

Having made certain that no obstruction to delivery exists, and then having considered it wise to hasten delivery, I suggest two alternative treatments. First, to give oleum ricini, one ounce, followed by a hot drink; two hours later an enema of soap and water; one hour later a cachet of quinine bihydrochloride grs. v, the latter to be repeated every two hours till grs. xv have been administered. If labor does not come on strongly, hot fomentations applied over the abdomen usually bring on strong pains.

When the os is the size of at least half-a-dollar (but not before), give a deep intramuscular injection of pituitary extract, 1 Cc. Full dilatation usually occurs speedily with an uneventful delivery.

A second suggestion is that, instead of giving the quinine in cachet form by the mouth, a 1 Cc. ampule containing grs. v of quinine bihydrochloride should be given intramuscularly once only, the oleum ricini and enema being given as usual.

The idea in not giving pituitary extract in the early stages of the first part of labor is based on the fact that pituitary throws the longitudinal fibers of the uterus into strong contraction, the circular muscles dilate very slowly, and the result is a slight dilatation of the os, with a following temporary inertia. The quinine seems to act as a more lasting tonic to the longitudinal fibers, and prepares the way for the pituitary extract. At all events the use of both have always, in my own experience, shortened labor to a very considerable extent.

T. J. RYAN,

Reprinted from *The Practitioner*, London.

DR. REBOLD'S CASE, AGAIN

In re Dr. Rebold's case, after giving the case more study, I am inclined to agree with Dr. Clark and Dr. Gray. At the same time I feel that, in order to make the diagnosis certain, the question which I suggested should be answered before a final conclusion can be reached; a previous family history being necessary as well as symptoms during childhood. Here is a table of findings, as reported:

Friedreich's disease	*Dr. Rebold's case.*
Early curvature of spine.	Displacement of vertebrae only noticed recently and might be due to the falls upon the cement floor.
Choreiform ataxia	None
Club-foot	None
Paraplegia	None
Reflexes (knee lost)	Absent
Slight aching or pain	None

We do have the following characteristic symptoms of Friedreich's disease.

Ataxia of gait and station	Right leg weak since childhood
Hammer toe	Yes
Weakness in legs	Yes, also hands.
Atrophy, only late	Right forefinger and thumb.

W. T. THACKERAY,

Fowlerton, Texas.

SIDE LIGHTS ON ASTHMA

Not attempting to discuss the pathology of asthma, with all the complicated views of the medical profession today, I will outline a method of study and treatment that

has given me no less than ninety percent of arrested cases. (I do not wish to use the word "cured" in this connection.)

I found, by a study of the bacterial flora of the lungs, that all of these cases could be markedly improved by the use of an autogenous vaccine, in high concentration, given with little thought of the degree of reaction produced; though the reactions, often severe, with extremely marked negative phase, occurred only during the administration of the first two or three injections. Ofttimes, the local reaction was almost to the degree of abscess formation, but yielded to cold compresses.

Meanwhile, the internal secretions were being fortified by the administration of desiccated suprarenal glands; orchic substance, thyroid and pancreas being added later.

The diet for two weeks was very rigid, all meat proteids being forbidden, after which time crisp, broiled bacon was allowed, boiled ham also, twice a week, with a gradual return to the average diet.

A purge, twice a week, of a combination of phenolphthalein, calomel and rhubarb was given in dosage sufficient to thoroughly evacuate the bowels, thus reducing the indican content of the urine, and lessening the acidosis.

Weekly doses of 31 grains of sodium iodide were given intravenously. In cases in which the sputum was difficult to raise, alternate intravenous doses of calcium iodide and guaiacol, following the course of vaccines, usually brought the desired results.

In children, the teeth should be taken care of, the postnasal space cleared of adenoids and, where the tonsils have degenerated, tonsillectomy is indicated.

All sources of infection were sought out and treatment applied. In males, the prostate and kidneys were often found to be the offenders; and in females, the uterus and ovaries. The appendix did not appear to enter into the causative foci of infection, although the gall-bladder was the source in a few cases.

ROBERT H. CHILTON,
Princess Anne Court House,
Virginia.

"WHERE will you find another man to match the average doctor? He lives the true altruistic life, devoting himself unreservedly to others. His skill and time are yours on the shortest notice, in the blackest hour of night and in the worst weather. His devoted unselfishness, ready sympathy and healthy good humor but increase his gray hairs."

—Hon. Alton B. Parker.

The Leisure Hour

Conducted by GEORGE H. CANDLER, M. D.

Thumbnail Therapeutics

MAGNESIUM SULPHATE

When magnesium sulphate is given intramuscularly or subcutaneously in doses of 2 Cc. of a 50-percent solution, we are 100 times removed from the fatal dose; but, this salt, used alone in sufficient amount to produce anesthesia, is the most dangerous anesthetic known though, when used as a synergist, with other substances, it may prove to be one of the most valuable drugs in the pharmacopeia.—DR. J. T. GWATHMEY and C. W. HOOPER, in *J. Lab. & Clin. Med.*

FOREIGN PROTEINS IN RHEUMATOID ARTHRITIS

The intravenous or intramuscular injection of foreign proteins produces clinical improvement in cases of rheumatoid arthritis. It should be used in *addition* to older methods of treatment.—DR. J. N. CRUICKSHANK, of Glasgow.

ENDOCRINES IN RHEUMATOID ARTHRITIS

Study all patients of rheumatic stock for evidences of thyroid instability in themselves and their parents. If they are refractory to the salicylates, try thyroid therapy cautiously.—LLEWELLYN J. LLEWELLYN, of London.

PROPHYLAXIS OF HEART DISEASE

Consider as an actual or potential heart case, and treat as such every child suffering with acute rheumatism, scarlatina, tonsillitis, infections of the respiratory or urinary tracts, syphilis and focal infections.

If this is done, many valvular heart lesions in later life will be avoided.—DR. F. C. RINKER, in *South. Med. & Surg.*

EPIDIDYMITIS

Intramuscular injections of boiled milk rarely fail to give prompt relief and an early cure in cases of acute epididymitis of gonococcal origin. Sometimes two injections are required. Patients are usually up and about in one week.—DR. J. R. SMITH, Med. Corps, U. S. Navy.

SALT-FREE DIET IN HYPERTENSION

Cases showing high blood pressure are frequently much relieved and benefited by the use of a diet as free as possible from salt. This does not apply to cases of advanced nephritis, which do not do well on a salt-free diet.—DR. MITCHELL BERNSTEIN, of Jefferson Med. Coll.

SMALLPOX VACCINE

Smallpox vaccine which has been kept at room temperature, particularly in summer, for even a few hours, is generally inert.—DR. REASNER, in the *Journal-Lancet.*

SPRAINS AND BRUISES

Diathermy offers a very valuable method for treating sprains and bruises. Pain is relieved and healing hastened.—DR. S. E. BOND, of Richmond, Ind.

INTERSTITIAL KERATITIS

True interstitial keratitis is syphilitic. The treatment consists in the use of atropine to keep the pupil open; mercury to the physiological limit; and the arsphenamines in small, frequently-repeated doses.—DR. JAMES A. DOWNING, of Des Moines, Ia.

ANGINA PECTORIS

In several cases of true angina pectoris, where amyl nitrite has been repeatedly given and has lost its effect, benzyl fumarate, in 5 to 10 grain doses, has given very satisfactory results.—DR. A. A. THOMMEN, of New York.

NASAL DIPHTHERIA CARRIERS

With a swab of absorbent cotton wound firmly on an applicator, thoroughly smear the interior of the nose, back to the nasopharynx, with 10-percent ichthyol ointment, several times a day, for 5 days. This treatment has cleared up a number of very refractory cases.—DR. CLARA ISRAELI, in *Jour. Lab. & Clin. Med.*

DIABETES INSIPIDUS

Daily doses of 1 Cc. of pituitrin, hypodermically, will promptly control the symptoms of diabetes insipidus, and there is evidence that the improvement may be maintained by following up the treatment with pituitary substance by mouth.—A. T. CAMERON, Univ. of Manitoba.

DRUGS AND OTHER THINGS

It is up to us to educate the public to the idea that we are no longer "purveyors" of medicine but rather that our chief function is to diagnose the sick individual and then to apply certain therapeutic agents, whether mental healing, drugs, massage, mechanotherapy, surgery, electricity or any other remedy which shall relieve suffering.

DEAFNESS

"There are two kinds of deafness: One, the curable, due to wax, which we treat ourselves, and the other, the incurable, due to some other cause, which we send on to the specialist."

Prophylaxis is the best and only reliable treatment of deafness. Look well to the patient's general condition, and particularly the condition of the *nose and throat*, from which most cases of middle-ear infection and subsequent deafness start.—Dr. Somerville Hastings, in *Brit. Med. Jour.*

TO PREVENT WRINKLES

There is no way to eradicate wrinkles, but they may be prevented by a judicious diet and a hygienic life, plus the following measures: Cleanse the face every night with hot water and a superfatted soap, rinse in cold water and spray with the following lotion:

℞—Aluminum Sulph.	4.00
Glycerin	50.00
Ext. Violet	0.35
Aq. Laurocerasi	10.00
Aq. Rosae	10.00

Let this lotion remain on all night and next morning apply cold cream with gentle massage and remove it when leaving the house.—Dr. Wm. J. MacDonald, of Mass. Gen. Hosp.

DIABETES

The use of raw pancreas of sheep, or of pig, *perfectly fresh*, finely minced and eaten with lettuce, in quantities of a tablespoonful daily, or every other day, seems to produce the same effect as the administration of insulin. The patient must, of course, be kept at rest and carefully dieted.—Dr. Thomas J. Hollins, in *Brit. Med. Jour.*

MILK PROTEIN IN VENEREAL DISEASES

Gonorrheal epididymitis and orchitis, in the male, and Bartholinitis and adnexal complications, in the female, are greatly benefited by intramuscular or subcutaneous injections of milk proteins. The dosage is 1 Cc. the first dose, and 2 Cc. at subsequent doses, given every other or every third day. If the treatment has to be repeated after a month or two, there may be rather severe reactions due, probably, to sensitization and allergy. — Bonnet & Petourand, in *Lyon Med.*

IODINE AND MUSTARD GAS DERMATITIS

Dermatitis produced by iodoform poisoning, or other iodine preparations, and that produced by the amino compounds is promptly relieved by the injection of manganese butyrate. This is also helpful in mustard gas poisoning, but is not sufficiently strong in severe cases.—Dr. J. E. R. McDonagh, of London, Eng.

MINOR GYNECOLOGIC PROCEDURES

Even trivial gynecologic procedures, such as the Rubin test for patency of the fallopian tubes and the passage of uterine sounds, are not without serious dangers.

Thorough sterilization and elimination of possible pelvic infections should be insisted upon before they are attempted. This means hospitalization. Office operation and intrauterine examinations have no place in gynecology. — Dr. John A. McGlinn, of Philadelphia.

PSORIASIS

All cases of psoriasis which I have treated by the mercury vapor lamp (air cooled) have been improved and many seem to be cured. In ordinary cases, six irradiations are sufficient, but cases of long standing require more.—Dr. W. F. Castle, in the *Practitioner* (London).

DIARRHEA IN CHILDREN

Correction of dietary errors, with partial starvation in the beginning of treatment and a mild laxative will correct most cases of acute diarrhea in children without medicine. If drugs are needed to control excessive peristalsis, *bismuth subcarbonate*, in fairly large doses, does well. Camphorated tincture of opium may be added, if necessary.—Dr. J. Epstein, in the *Med. Times.*

GONORRHEAL EPIDIDYMITIS

The intravenous injection, every 48 hours, until complete relief is obtained, of 1 Gram of sodium iodide in 10 Cc. of sterile water,

at room temperature, produced excellent results in all cases. No more than 4 injections were required for any case in this series. This treatment should not displace but supplement the older symptomatic methods of treatment.—DR. A. J. CHENERY, in *Nav. Med. Bull.*

PREVENTION OF IVY POISONING

Upon returning from a walk in the fields or where poison ivy grows, carefully dust the clothing, particularly the lower parts and the sleeves. Clean the shoes with a brush before they are taken off or handled.

Keep the hands from the face until this is done and after it is finished wash the hands, forearms, face and neck with good soap-suds. Laundry soap is best. No particular scrubbing is necessary. Washing, even with plain water, helps.

—*Popular Health.*

FOOD IMPACTION IN ESOPHAGUS

If a mass of food becomes impacted in the esophagus, it can usually be removed by giving a hypodermic injection of 1/10 grain of apomorphine, after which the retching movements will expel it.—DR. JAMES E. LEBENSOHN, of Chicago.

STERILIZING DRINKING WATER

Five drops of tincture of iodine are sufficient to sterilize, for drinking purposes, one liter of water. Five drops of sodium thiosulphate, added 20 minutes later, will remove the taste and the yellow color.—*Int. Med. Digest.*

DIGITALIS

Every patient needs his own dose of digitalis. This should be ascertained by experiment and then adhered to. — DR. BERNARD FANTUS, Chicago.

BOILS

Acne vaccine and staphylococcus vaccine are "worth their weight in gold" in the treatment of boils.—DR. BERNARD FANTUS, Chicago.

CONSTIPATION

The constipation which is now so prevalent is due largely to vitamine starvation from the lack of fresh and vital foods, and these must supplant the aperient pill in its treatment.—DR. S. H. BELFRAGE, in *The Practitioner.*

INCREASED INTRAOCULAR TENSION

A simple method for relieving increased intraocular tension is to carefully introduce a small pledget of cotton, moistened with 4 to 7 minims of epinephrin, under the upper eyelid and let it remain for 2½ minutes. The eye may or may not be first anesthetized with butyn.—DR. HARRY S. GRADLE, in *J. A. M. A.*

LACTIGEN IN INFECTIONS OF THE HAND

Lactigen, given intramuscularly, in doses of 10 Cc., repeated in 36 hours, brings about a localizing of the process, lowering of temperature and disappearance of pain in 24 to 36 hours. There is little or no reaction.—DR. EDW. H. JOHNSTON, Chicago.

DIGITALIS

Ordinary doses of tincture of digitalis (15 minims), by mouth, do not act for about 48 hours. Standardized active principles, given intramuscularly, act promptly and well. They may be used intravenously in postoperative shock.—DR. THEODORE TIEKEN, Chicago.

CAMPHOR

Camphor is *not* a heart stimulant in doses as large as 90 grains—how much less in doses of 2 or 3 grains, as it is frequently given, in camphorated oil, for this purpose. —DR. THEODORE TIEKEN, Chicago.

BITTERS

The only "bitters" which are of any real value are tincture of nux vomica (in doses of 2 or 3 minims) and tincture of cinchona. —DR. THEODORE TIEKEN, Chicago.

LEMONS

Of all fruits, the lemon is probably the most valuable. If we would begin the day with hot lemonade instead of a cup of coffee, we would be a healthier race.—*Pharmaceutical Era.*

STOPPING OF THE NOSE

A little ointment composed of 1 to 3 grains of menthol and 2 to 8 minims of oil of eucalyptus to the ounce of vaseline, applied to the interior of the nose at bedtime, is often a very considerable help in discharge.—SOMERVILLE HASTINGS, F.R.C.S., London.

POSTOPERATIVE ADHESIONS

The regular use of pituitary extract following abdominal operations will go a long way toward preventing or minimizing the formation of postoperative adhesions, because continual and regular peristalsis in the intestines keeps them from lying together in an inert mass, a condition most favorable for adhesions.— A. SCOTT GILLETT, F.R.C.S., in the *Practitioner.*

POSTOPERATIVE FLATULENCE

In relieving the flatulence which frequently occurs after abdominal operations, nothing is better than the use of the long rectal tube and the administration of warm enemas consisting of 1 dram of oil of rue in one pint of the infusion of chamomile.—A. SCOTT GILLETT, F.R.C.S., in the *Practitioner.*

CATARRHAL DEAFNESS

If a glass bulb, containing absorbent cotton, is inserted in the tube of a Poltzer bag, and 5 drops of the following solution placed on the cotton, the work of the bag will be more effective.

℞—Menthol	1.00
Chloroform	16.00
Ether, acetic	8.00
Alcohol	8.00

M. Sig.: Five drops to be used on cotton as directed.—SIR JAMES DUNDAS-GRANT, M.D., in the *Practitioner.*

IVY POISONING

A saturated watery solution of tannic acid, applied to the affected parts 2 or 3 times a day seems to be specific in rhus poisoning.

The addition of a small quantity of phenol is sometimes helpful.—DR. L. J. SMITH, in *South. Med. & Surg.*

SYDENHAM'S CHOREA

Chorea seems to be a manifestation of heredo-syphilis and is frequently relieved by the intravenous use of neoarsphenamine in increasing doses, beginning with 0.10 to 0.15 Gm.—MELO, in *Riv di Clin. Pediat.*

GONORRHEA

The acute stage of gonorrhea is materially lessened by the intramuscular injection, into the buttocks, of 1.0 Cc. of a one-percent solution of manganese butyrate, on the first day of the discharge and of 1.5 Cc. on the fifth day. Do not give more.—J. J. ABRAHAM, Surgeon, London Lock Hosp.

ACETYLSALICYLIC ACID AND MAGNESIA

In Denmark, they combine magnesia with acetylsalicylic acid, to neutralize the bad effects of the latter. The proportion is, 18 Grams of the acid to 2.5 grams of light magnesia.—*American Druggist.*

APPENDICITIS

The mechanical factor of torsion is of the utmost importance in appendicitis, and places this disease in the same category with strangulated hernia and intestinal obstruction. The condition is urgent, delay is serious and an early operation should be performed.—DR. ERIC JONES-EVANS, in the *Practitioner.*

Current Medical Literature

STOVARSOL IN AMEBIC DYSENTERY

Drs. F. M. Johns and S. C. Jamison report results of some very interesting observations in the *New Orleans M. & S. J.* for May, 1925 (*Internat. Med. Dig.*, July, 1925).

The authors treated twenty-seven cases of amebic dysentery with stovarsol and the results have been remarkable. Their cases ranged in severity from chronic dysentery of long duration to active, severe, emaciated clinical cases. The duration of the disease ranged from a few weeks to as long as 25 years. Diagnosis was confirmed in all cases by the presence of endamebae in the stools or in scrapings obtained through the proctoscope and was verified by the use of wet-fixed preparations stained by the iron-alum-hematoxylin method of staining the nuclear structure.

In all instances (except one patient who received a smaller amount) stovarsol in 0.25 Gram doses, administered three times daily for one week, caused complete subsidence of all symptoms, the improvement usually beginning about the third or fourth day of treatment.

Sixteen of the cases remained well and free from endamebae for the period of observation, which was about 2 or 3 months.

Four cases relapsed; three clinically and one developing cysts. The clinical relapses occurred within two weeks and were in patients having had dysentery for three to five years, almost continuously. The lesions, however, as found by proctoscopic examination, had subsided to a remarkable degree; a single rectal granulation the size of a silver dollar in one instance, and pin point ulcerations in the other.

Many of the apparently cured patients were proctoscoped and stool examinations were repeatedly made, all with negative findings.

Long standing cases with massive involvement of the bowel walls present the same difficulty of treatment that applies in other tissue-invading, parasitic diseases, the parasites being protected by impermeable walls of exudate and tissue proliferation. It is evident that no specific will cure in all instances. Even better results than those which have been obtained can be hoped for later.

Stovarsol (acetyloxyamino-phenyl-arsenic acid, or "190") is an arsenical designed to be administered through the digestive tract. It is apparently partly absorbed from the small intestine and then excreted through the large intestine. The only untoward effect attributed to it seems to be a dull headache and sometimes a mild rash.

The proper dosage has not yet been fully determined; some varied from one-quarter Gram to three-quarters Gram per day over seven-day periods.

The authors' experience so far indicates that they have found in stovarsol a supposedly harmless remedy for amebic dysentery that compares quite favorably with anything previously employed.

EFFECT OF MILK INJECTIONS ON THE BLOOD

In the *Deutsch. Med. Wochenschrift* (*Int. Med. Digest*) for May 1, 1925, appears an article by Dr. E. A. Spektorovska, who has carried on a series of experiments to determine the effects produced upon the blood by the injection of boiled milk.

In the last decade, nonspecific protein therapy has steadily gained favor as a therapeutic aid. However, the action of the parenterally incorporated milk is not fully understood and to this end the author undertook a study of the blood after such injections.

A great number of investigators have reported on different phases of this subject, and the reports are not always in harmony. Thus some ascribe the effects to the action of the protein on the leukocytes; others state that the effect is dependent upon the strength of the leukocytes. Others believe that the leukocytes play no role in the process. Some ascribe the leukopenia to a functional paralysis or weakness of the spinal cord; others found that the peripheral leukopenia runs parallel with the increase of leukocytes in the internal organs, particularly the spleen and liver.

The usual dose is 5 to 10 Cc. intramuscularly, but the author used doses of 1 to 2 Cc. of sterilized milk which were injected subcutaneously at intervals of one day. Abscesses were never seen at the point of insertion of the needle. The local and temperature reactions were clearly expressed.

The socalled anaphylactic shock occurred in 3 cases after the sixteenth or seventeenth injection. Soon after the injection of an ordinary dose, cyanosis and dyspnea set in; the pulse could barely be felt. After 3 to 5 minutes, rarely longer, these symptoms disappeared, often after the administration of 15 to 20 valerian drops without any further therapeutic actions. The next injection, which was made after the regular interval, produced no disagreeable symptoms. Casual, unsystematic blood examinations on the next day often showed a leukopenia.

A systematic blood study was made of 22 patients with different diseases, and some healthy students as controls. Two Cc. of sterilized milk were injected. The patients were brought into the laboratory about 2.5 hours after they had had a light breakfast. They were set at ease there and in

that way the blood withdrawn represented more closely the normal condition than if the sample had been taken while there was some fear and anxiety on the part of the patient. The sample of blood was withdrawn by the usual method. Other samples were taken 1 hour after the injection and at the same time each day for 5 days. The staining was done by the Unna-Pappenheim method. The general condition was weakened in only 4 patients. The patients complained of a feeling of faintness, secretion of sweat and a desire to sleep. On the following day, however, all these symptoms had disappeared. An increase in temperature as the general body reaction was observed in only 50 percent of the cases. In those cases the temperature increased to a maximum of 100° F. The local reaction was marked in 75 percent of the cases and usually appeared on the second day in the form of swelling and redness with a sharp boundary at the place of injection. On the third day all these disappeared without any complications. A focal reaction was never observed.

An hour after the injection, an unimportant leukopenia with a decrease of from 700 to 1500 in the number of leukocytes was determined in the majority of the patients and in the well subjects. In the minority of the cases, the number of white blood corpuscles was not changed. In 80 percent of the cases, the decrease in the number of leukocytes continued and attained a maximum on the second or third day, when the decrease was from 2000 to 4000, an average of 2600. Thereafter the number of leukocytes increased and on the fifth or sixth day they had regained their former value. In the remaining 20 percent of the cases there was observed a leukocytosis, in which the number of leukocytes increased from 1500 to 2500 and in one case increased 7500; on the fifth or sixth day the leukocyte value had returned to normal.

The erythrocyte curve increased in 93 percent of all cases. This usually attained its maximum, an increase of 2,000,000 (average), on the third or fourth day. On the fifth or sixth day, the erythrocyte curve returned to normal.

The morphological study showed originally a decrease and later an increase in neutrophiles; immature forms were never observed. Many times the number of eosinophiles increased up to 6 percent; many times the mononuclears reached 5.5 to 7 percent. Normoblasts and megaloblasts were never found.

A similar study was undertaken in which the author determined the effect of injections of pure atropine, pure adrenalin and injections of these two drugs together with injections of milk. Atropine produced a leukopenia, and either an erythrocytosis or an erythropenia. The simultaneous injection of atropine and milk produced an effect equal to the summation of the effects of each material separately. Adrenalin produced both a leukocytosis and erythrocytosis. The effect of adrenalin was very transient and thus the prolonged effect, when adrenalin and protein were injected at the same time, was due to the protein.

TRANSITORY CEREBRAL MANIFESTATIONS OF HYPERTENSION

In *La Prensa Medica Argentina*, for April 30, 1925, Drs. Camille Lian and Raymond Barrieu discuss the minor cerebral accidents which frequently appear in patients suffering from arterial hypertension.

They quote Vaquez to the effect that transitory aphasia and brief periods of paresis, especially brachial monoplegia, are more common in persons with high blood pressure than is generally supposed.

The authors represent cases in which interference with speech, amblyopia, amaurosis, aphasia, amnesia, mental confusion with loss of memory, and even complete hemiplegia have appeared in such patients and passed away in a few minutes or hours without leaving any apparent after-effects. There is, however, a strong tendency for these manifestations to recur.

These physicians believe that such conditions are due not to the hypertension itself but to brief and violent exacerbations of the vasospasm which underlies the hypertension; and that the danger is not so much from the attack itself as from the serious condition in the background, of which it gives warning.

The immediate treatment is by the inhalation of an ampule of amyl nitrite, the ingestion of 20 to 30 drops of a 20-percent alcoholic solution of benzyl benzoate, repeated 2 or 3 times a day, and the hypodermic injection of 2 to 4 cgms. of nitrite of soda (2 cgms. to 1 Cc. of distilled water), 2 or 3 times a week for a month or two.

The underlying condition should be vigorously treated by a nonacid-forming and salt-free diet, with occasional purgation and venesection, as circumstances seem to indicate.

DIAGNOSIS OF ACUTE ABDOMINAL CONDITIONS

There are physicians who have a tendency to make a diagnosis of "acute gastritis" whenever they see a case with sudden abdominal symptoms. Dr. Wm. S. Cook, of Albany, Ga., warns against this practice in the *J. M. A. Georgia*, for June, 1925, and holds that such a diagnosis is justified only when all the more serious abdominal conditions have been eliminated with great care.

Dr. Cook calls attention to the fact that, when abdominal pain is accomplished by fever, tenderness and leucocytosis, the case is *not* one of simple acute gastritis; that pleurisy, pneumonia, epididymitis and lead poisoning may cause abdominal symptoms closely resembling appendicitis; that we should consider perforation with peritonitis, gastric or duodenal ulcer, typhoid, hepatic and renal conditions, carcinoma of the abdominal viscera, and (in women)

acute inflammatory conditions of the pelvic organs in all such cases; that a complete history and careful physical examination (including Wassermann and Widal tests and a leucocyte count) are always necessary; and that, in case of doubt, a surgeon should always be called in consultation as, if the case proves to be an acute abdominal inflammation, it will probably require surgical treatment.

The dangers of the promiscuous use of morphine, purges and ice-packs in treating cases of this kind are emphasized.

VACCINES AND NONSPECIFIC PROTEINS

Dr. Ralli, of the Greek hospital, Alexandria, believes that the most satisfactory results are obtained, in acute and chronic infections, where vaccines are indicated, by using injections of nonspecific proteins, such as boiled milk, along with the specific substances. He feels that the favorable results following the shock reactions produced by the milk injections can be developed into a specific immunity if the proper vaccines are also used.

In the *Paris Médical*, for January 10, 1925, he calls attention to the regularity with which vaccines are used, in England, as a prophylactic measure, before major operations and confinement, and against the acute respiratory diseases.

The doctor believes that, when results are not obtained by vaccines, it is frequently due to the fact that the doses used were too small, and that if there is no reaction the dose was insufficient; the favorable results seeming to be in direct proportion to the severity of the reactions.

Dr. Ralli feels that the injection of convalescent sera, as in pneumonia, typhoid and the like, may prove to be a more valuable procedure than the use of vaccines made with killed bacteria.

THYROTOXICOSIS IMPROVED BY INJECTING MILK PROTEIN

It has been customary to prepare patients showing severe thyrotoxicosis for more radical operations by ligating the thyroid arteries and then waiting for the improvement which generally takes place.

Dr. Joseph L. DeCourcy, after careful study of the matter, believes that this improvement is due to the fact that the patient is desensitized by absorbing the products of the tissues destroyed during the operation and, upon that hypothesis, he has experimented with the intramuscular injection of milk proteins and reports his results in the *Chicago Med. Rec.*, for May, 1925.

The technic followed is to inject 5 to 10 Cc. of toxin-free milk deep into the gluteal muscles every 5 to 7 days, continuing until there is no resultant leucocytosis. This usually requires 2 to 3 injections; sometimes more.

Dr. DeCourcy believes, after careful observation of a number of cases, that this procedure produces effects practically identical with those following polar ligation and that it can well displace this operation in most cases and will give a safer treatment in the very severe type of cases where we would hesitate to undertake the more formidable maneuver.

GLUCOSE IN ACIDOSIS OF CHILDREN

Carbohydrates furnish the supply of energy for the body. Material not used immediately is stored in the liver as glycogen, whence it is drawn when the supply of glucose normally present in the blood runs low, due to fasting, severe vomiting, etc.

When the available supply of glucose in the body runs low, due to deprivation of carbohydrate food, the body begins to burn the fats, and the ketone bodies (beta-oxybutyric and diacetic acids) appear. The carbon dioxide combining power of the blood is decreased and we have a ketosis or acidosis.

Dr. Fritz B. Talbot calls attention to these points in the *Boston M. & S. J.*, for May, 1925, and emphasizes the fact that when the symptoms of acidosis appear in children we must, at once, furnish a readily available supply of carbohydrate in the form of glucose (corn syrup) or honey. Cane sugar and orange juice sometimes help. The glucose solution may be given by mouth, if it can be retained, or by rectum, subcutaneously or intravenously, if necessary.

For subcutaneous or intravenous use, a 10-percent solution of C. P. glucose is made up in physiological salt solution and autoclaved at 15 pounds for 20 minutes. To this is added a buffer solution made by bringing 161.1 Grams of sodium dihydrogen phosphate up to 500 Cc. with distilled water and adding enough 2.3 normal sodium hydrate solution to make a PH of 7.5. This requires about 78 Cc. of the sodium hydrate solution to 100 Cc. of phosphate solution. The completed glucose solution should not be kept more than 48 hours before use.

The intravenous dose, for a child, may be as much as 200 Cc. as circumstances indicate.

BATHS IN SCARLET FEVER

We all know the highly beneficial effects produced upon typhoid patients by cool or cold baths. Dr. D. S. Hanson, of Cleveland, O., recommends much the same sort of treatment in scarlatina.

A bath-tub or, at worst, a wash-tub and water are always available. The patient is placed in the tub filled with water at a temperature of 100° F., and cold water is slowly added until the temperature is reduced to 90° F. In very young or frail children, the cooling is stopped at 93° to 95° F. The baths are repeated as indicated by nervousness and high fever.

The benefits appear to be the same as those obtained by baths in typhoid, viz:—the relief of delirium and other nervous

symptoms, the reduction of high temperature and the avoidance of complications. These seem to be the result of increased elimination of toxic materials, regulation of the circulation and direct abstraction of heat by the cool water.

WHOOPING COUGH

Many physicians are inclined to look upon whooping cough as a disease of no particular importance, which will run its course, anyway, and needs no particular attention. In view, however, of the fact that, in Denmark, it causes twice as many deaths as any other acute infectious disease, while in England it is second only to measles (and a close second) and in the United States stands third as a cause of death in this class of maladies, Dr. Thorvald Madsen, of Copenhagen, has deemed it of sufficient importance to make it the subject of his Cutter Lecture in Preventive Medicine, before the Harvard Medical School, in October, 1924. This lecture is published in the *Boston M. & S. Jour.* for January 8, 1925.

Dr. Madsen has here given a very interesting study of the bacteriology, diagnosis, prevention and treatment of pertussis, as practiced in Denmark, and his suggestions have much to recommend them to us, in this country.

The mortality from this disease is decidedly higher in females than in males; and in children under one year of age, and particularly under 6 months, it is a very serious and frequently fatal malady.

The whooping-cough bacillus was first described by Bordet and Gengou, in 1906, and, while this organism is not yet universally recognized as being the definite and sole cause of pertussis, the evidence is sufficient for us to proceed upon it, as this bacillus is found in 75 to 100 percent of early cases of whooping cough, and not elsewhere, and gives a complement fixation test with the blood of these patients.

For diagnosis, the presence of the Bordet-Gengou bacillus in the secretions of the nose and throat is sufficient during the first week, or catarrhal phase of the disease. About the beginning of the second week, when the spasmodic phase begins, the complement fixation test is generally positive. The ability to make an early and positive diagnosis of pertussis is often of the highest importance.

One very interesting practical feature of these investigations is that, after the first week, the organisms in the secretions diminish rapidly and are absent after the fifth week, although the spasmodic cough may continue. This indicates that any quarantine established may cease after the fifth week, in spite of persistent coughing.

Carriers after whooping cough are so few as to be negligible, and healthy carriers have never been demonstrated.

As a means of prophylaxis, it is recommended that known cases be isolated for 4 to 6 weeks and that known contacts be vaccinated with a vaccine of Bordet-Gengou bacilli. These precautions are especially necessary in protecting very young infants.

The vaccine is made to contain 10,000,000 organisms per cubic centimeter and injections are given, preferably intramuscularly, of 0.5, 0.7 and 1.0 Ccm., with 4-day intervals. Very young babies receive slightly less.

Opinion as to the value of vaccination is not unanimous, but, in an epidemic in the Faroe Islands, there were but 5 deaths among 2,094 vaccinated children, while 627 unvaccinated showed 18 deaths.

Dr. Madsen has had no favorable experience with the pertussis serum, and feels that it is of little value, but the results from the prophylactic and the therapeutic use of the vaccine have been sufficiently encouraging to warrant its further and more extensive use.

The bacteriological and serological measures for diagnosis should prove of the highest importance in controlling epidemics of this really serious disease.

THE HYPOTONIC (FLABBY) CHILD

There is a class of children frequently seen by the practitioner as well as by the pediatrician, in which no definite pathological condition can be found, but who show a condition of more or less extreme lack of tonus of all the muscles.

In the *Brit. Med. Jour.* for February 14, 1925, Dr. Donald Paterson discusses such children. They have "pot" bellies, with a compensating lordosis, due to flabbiness of the abdominal and spinal muscles. Hyperextensible joints, knock-knees, flat feet, pigeon-toes and prominent scapulae are further evidences of lack of muscular tone. Many of these children have enlarged tonsils and adenoids and some have more general lymphoid enlargements.

Dr. Paterson feels that any factors which tend to depress metabolism may underlie this condition and chief among these are improper diet and lack of exercise and sunshine.

As to diet, we should see that there is sufficient protein, animal fat and vitamines and not too much carbohydrate. The caloric intake should not be excessive, in proportion to the ouput of energy. Cod-liver oil frequently helps.

These patients should not be overclothed, and should have abundance of exercise or massage and be kept in the open air and sunshine as much as possible.

PARAVERTEBRAL ANESTHESIA

Many patients who require kidney operations are "poor surgical risks" and Commander W. S. Pugh, Medical Corps, U. S. Navy, (Retired) feels that paravertebral anesthesia offers such patients the best chance for a successful outcome.

Writing in the *Naval Med. Bull.*, for March, 1925, he gives the full details of a technic which has proved very satisfactory.

Dr. Pugh uses a 1-percent solution of procaine (without adrenalin), as he believes this to be the safest and most reliable anesthetic for such work.

The patient is purged the day before operation and considerable quantities of sodium bicarbonate are given by mouth or rectum.

One hour before operation, the patient receives a hypodermic injection of 1-8 grain of morphine, dissolved in 2 Cc. of a 50-percent, sterile solution of C. P. magnesium sulphate. Just before going to the operating room, he has another injection of 3-100 grain of hyoscine and 1-6 grain of morphine.

In giving the paravertebral injections, Dr. Pugh feels that it is of great importance to avoid all hurry or flurry which might excite the patient, and to make sure, by slow and careful procedure, that there will be no pain produced after the first prick of the injecting needle.

The operation should be painless and, if the injections do not secure this, ether should be given.

The bleeding after paravertebral anesthesia is only about one-tenth as much as occurs when an inhalation anesthetic is used, and this, together with the fact that the anesthesia lasts for 6 to 8 hours, minimizes two of the great factors producing shock—hemorrhage and pain.

TREATMENT OF RABBIT SYPHILIS WITH METAPHEN

In the April, 1925, number of *Prog. in Chemotherapy and Treatm. of Syph.*, Drs. Geo. W. Raiziss and M. Severac, of Philadelphia, report some very interesting results in the treatment of syphilis in rabbits by the oral administration of metaphen.

Experiments showed that these animals would tolerate doses of 40 Cc. of a 1-1000 solution of metaphen per kilo of body weight.

A rabbit was inoculated with treponema pallidum and developed lesions in both testicles. After giving 2 Cc. of a 1-1000 metaphen solution, by mouth, for 7 days, the lesions became negative for spirochetes, and after 35 days the animal was clinically normal.

A dose of 1 to 5 Cc. of a 1-500 solution of this drug, in a glass of water, might be a suitable dose for human patients and should be helpful in treating cases of syphilis.

DOCHEZ'S ANTISCARLATINAL SERUM INTRAVENOUSLY

In the *Boston M. & S. J.* for May 14, 1925, Dr. C. L. Thenebe, of Hartford, Conn., administered Dochez's antiscarlatinal serum intravenously, with gratifying results.

As this serum is comparable with diphtheria antitoxin, it seemed reasonable that smaller doses would be required intravenously than when given in the muscles, due to the fact that, by the former route, the maximum concentration of antibodies in the blood is obtained very promptly. The usual dose employed was 10 to 15 Cc., although, in one case, as much as 150 Cc. was given.

Dr. Thenebe feels that, as no untoward effects followed this procedure, we have here a safe method for lessening toxemia and diminishing complications in cases of scarlatina and where a streptococcus hemolyticus bacteremia is present.

INSULIN IN TOXEMIC VOMITING OF PREGNANCY

W. Thalhimer has used insulin in three cases of severe toxemic vomiting of pregnancy, with striking results. The acidosis and excessive vomiting were promptly relieved, and the condition of the patients soon returned to that which is normal in early pregnancy. First he slowly injects, intravenously, 1000 Cc. of warm 10-percent glucose solution, running in about 300 Cc. an hour. About fifteen minutes after the injection is started, 10 units of insulin are given hypodermically and this dose repeated at intervals thereafter until 30 units are given for the 1000 Cc. of glucose solution injected. The author states that insulin has proved to have as rapid a curative effect on ketosis and the toxemic vomiting in pregnancy, as it has on preoperative and postoperative, nondiabetic acidosis; some patients will require only one treatment, others may need several; treatment with insulin should be reserved, for the time being, for the most severe type of toxemic vomiting of pregnancy, as milder cases clear up when the patients are given rest in bed, sedatives and glucose per rectum.—*J. A. M. A.*, v. 82, p. 696, March 1, 1924.

QUININE INJECTIONS FOR VARICOSE VEINS

Bardy (*Finsk. Laker. Handl.*, 1924, Jan.-Feb., 47) advocates the method recommended by Genevrier, in 1922, for the treatment of varicose veins. A solution of quinine hydrochloride 4, urethane 2, distilled water 30, is injected in doses of 0.25 to 0.5 Cc. into the vein by means of a hypodermic syringe with a fine needle. This not only hastens coagulation but also causes a firm union of the clot with the walls of the vein. The artificial thrombus so formed is more firm and adherent than that which forms spontaneously in the proximal end of a resected vein.—*Brit. M. J.*, May 17, 1924.

INTRAVENOUS GENTIAN-VIOLET IN SEPSIS

Dr. J. S. Horsley, of Richmond, Va., has treated 32 patients, suffering from various forms of sepsis, with intravenous injections of gentian-violet, and reports his results, which were satisfactory in all but 5 cases, in the *Virginia M. Monthly* for June, 1925.

His technic for preparing the solutions is as follows:

"Pure gentian-violet may be obtained in powdered form, and can be used in 1 percent

to 0.25 percent solution. I prefer a 0.5 percent solution. The solution should preferably be made up fresh for each injection, in either sterile distilled water or sterile physiological salt solution which has been dissolved in distilled water. I used the salt solution for it happened to be more available. All needles, syringes and containers should be thoroughly rinsed with sterile distilled water or intravenous saline solution before being used. The accurately weighed gentian-violet powder is then added to the proper amount of warm solution and gently mixed. This is allowed to stand for at least half an hour. The solution does not have to be sterilized again, as it sterilizes itself. Just before use the dissolved solution is filtered through sterile gauze (six or more layers). The solution must not be allowed to stand in the syringes, as this will frequently cause them to catch or hang.

"Care must be used in the preparation of the solution, in order to insure good results and no reactions. The intravenous use of any drug is not to be regarded as a slight matter. Especially is this true when such large quantities of an antiseptic solution as this are being used."

The doctor gives a study of his cases and several case reports and comes to these conclusions:

"In doses varying from 3 to 7 mg. per kilogram of body weight, properly prepared 0.25 to 1-percent solutions of gentian-violet may be given intravenously with safety. In sepsis where Gram-positive staphylococci are the sole or predominant etiological organisms and where the bacteria are accessible to the blood stream, the intravenous use of gentian-violet is justifiable, indicated, and most beneficial."

GENERAL PRACTITIONER MAY TESTIFY TO MENTAL CAPACITY

(Baldridge v. Zigler (Okla.), 229 Pac. R. 831)

The Supreme Court of Oklahoma, in affirming a judgment sustaining the validity of a deed conveying land, which was executed six days after the grantor was stricken with paralysis and six days before his death, says that a physician was asked whether, during his visits to, talk with, and examination of, the grantor, the latter was of rational and sound mind. The question was objected to on the ground that the witness had not shown himself qualified. The objection was sustained by the trial court. But the supreme court holds that it was error to sustain the objection on the ground stated, because the evidence showed that the witness was a licensed practicing physician, and had been for a number of years. While the witness did not qualify as an expert on mental and nervous diseases, the supreme court thinks his qualification as a general practitioner would be sufficient to authorize him to express an opinion. However, the supreme court does not regard the error of sufficient consequence in this case to constitute reversible error, for the reason that the testimony sought to be obtained by the question was merely cumulative, as several experts and other attending physicians were placed on the stand and gave testimony on this point; and furthermore the witness was permitted to testify as to the condition of the patient, at the time of the witness' visits, and there are many authorities which hold that evidence of the character objected to is not competent. *J. A. M. A.*, May 16, 1925.

TREATMENT OF CONSTIPATION IN EARLY CHILDHOOD

While intestinal stasis is by no means as frequent a disturbance in childhood as the diarrheal conditions, says A. I. Blau (*Med. Times*), yet it is sufficiently common, especially in bottle fed infants, to deserve special consideration. Since in most instances the sluggishness of the bowels is directly due to dietetic errors or to the factors concerned with the feeding, it behooves us to approach the treatment from that angle.

Dr. Blau concludes:—

1.—A more liberal and mixed schedule of feeding early in the child's life is of prime importance in the prophylaxis and treatment of constipation.

2.—A high fat or carbohydrate content, as the case may be, will lessen the tendency to intestinal stasis and often correct its presence in bottle feeding.

3.—Regularity in the feeding and early training are potent contributory factors in the prevention and treatment of the disorder.

DEATH FOLLOWING INTRAVENOUS INJECTION OF DISTILLED WATER

Distilled water is a tissue poison and, while small quantities may be injected into the veins without causing gross damage, large quantities so injected are very dangerous.

Dr. W. Wayne Babcock, of Philadelphia, reports a case, in *Med. Jour. & Rec.*, of New York, where in doing a laparotomy, under spinal anesthesia, the patient's condition became somewhat unsatisfactory and an intravenous infusion of physiological saline solution, with adrenalin, was ordered.

When about 125 Cc. of the solution, containing about 5 minims of 1-1000 adrenalin solution, had entered the vein, convulsive respiratory movements began and the patient ceased to breathe and become pulseless. Cardiac massage, intraventricular injection of adrenalin and digalen, and all other maneuvers were of no avail. The patient was dead.

Chemical examination showed no trace of chlorides in the fluid injected. The pharmacist had failed to put any salt in the stock-bottle of "concentrated solution", from which the operating room solutions were made up.

The heart and great vessels were found filled with red, watery blood and small, soft clots.

Dr. Babcock suggests that solutions for intravenous use be made up from sterile tablets or sterile ampules of dry salt, rather than from concentrated stock solutions, which may or may not be satisfactory; and that at least two trained and reliable persons check the preparation of every solution which is to be used intravenously.

EFFECT OF TOBACCO SMOKING

Mendenhall (*Am. J. Physiol.*, May 1, 1925) feels that the results of his investigation seem to warrant the following conclusions: (1) The immediate effect of smoking on a sensory mechanism is conditioned on the state of the sensory mechanism at the time when the subject indulges in smoking. (2) The immediate effect of smoking is stimulation when the sensory mechanism is depressed, or depression when the sensory mechanism is in a state of hyperexcitability. (3) The depressing effect of smoking is much more marked on the threshold than is the stimulating effect. (4) The sensory mechanism of smokers and nonsmokers, both male and female, reacts alike to the influence of smoking. (5) Non-nicotine-containing smoke does not produce the same results as nicotine-containing smoke. The results are suggestive of nicotine action because of the difference of effect produced by nicotine smoke and non-nicotine smoke; and because the known action of nicotine on nervous structure is chiefly that of depression. (*J. A. M. A.*)

CLASSIFICATION OF GOITER

Almost every writer upon the subject of goiter has felt it incumbent upon him to add one or more new terms to the already top-heavy and unilluminating nomenclature of the subject, until now the practitioner is overwhelmed and feels that it is hopeless to attempt to understand the subject. This is a serious condition of affairs, because some goiters are benefited or cured by iodine and others are made worse, and we must known which is which.

In the *Illinois M. J.*, for July, 1925, Dr. James H. Hutton, of Chicago, Ill., declares that the practitioner will do well to throw the complicated terminology to the winds and content himself with a simple classification, like this:

Goiter:

1.—Colloid.
2.—Adenoma.
  A. With hyperthyroidism.
  B. Without hyperthyroidism.
3.—Exophthalmic goiter.
4.—Tuberculosis, syphilis, thyroiditis, malignancy.

The characteristics and management of the various forms he sets forth as follows:

Diffuse Colloid Goiter

Occurs during adolescence, menstrual periods and pregnancy.
Endemic.
Enlargement smooth and uniform.
Symptoms due to pressure or hypothyroidism.
No tendency to give rise to hyperthyroidism.
Prevented or cured by iodine.
Surgery never indicated.

Adenoma with Hyperthyroidism

Goiter always present.
Asymmetrical enlargement of thyroid or nodules in the thyroid.
Onset insidious. Course variable, extending over many years. Frequently a history of repeated attacks of hyperthyroidism during this period.
Tachycardia.
Nervousness.
Tremor irregular and less marked.
Loss of weight and strength.
Increased appetite.
Thrill and bruit usually absent.
Superior thyroid arteries not usully palpable.
Exophthalmos almost always absent.
Tendency to hypertension; pulse pressure is normal.
Gastrointestinal crises infrequent.

Treatment

Surgical.
Removal of foci of infection.
Removal of the adenoma if a single large one is present.
Subtotal thyroidectomy.
Medical management frequently not satisfactory.

Adenoma without Hyperthyroidism

Occurs during adolescence, menstrual periods and pregnancy.
Endemic.
Enlargement nodular or asymmetric.
Symptoms due to pressure or hypothyroidism.
Tendency to develop hyperthyroidism after the age of 30.
Frequently made worse by iodine which often indicates hyperthyroid symptoms.
Surgery frequently indicated either as a cure or as a prophylactic against hyperthyroidism.

Exophthalmic Goiter

Goiter many times absent.
Symmetrical enlargement of thyroid when a goiter is present.
Onset acute. Course definite, continuous and characterized by periods of exacerbations and remissions.
Tachycardia.
Nervousness.
Definite fine tremor.
Loss of weight and strength.
Increased appetite.
Thrill and bruit usually present.
Superior thyroid arteries frequently palpable.
Exophthalmos usually present.
No tendency to hypertension; pulse pressure low.
Gastrointestinal crises frequent.

The conditions listed under classification No. 4 must be handled as indicated by the

particular case, after making a definite diagnosis.

Iodine, properly administered, will prevent or cure most colloid goiters; but is a poison to persons having adenomata and should *never* be given in such cases.

ACTION OF ALCOHOL ON CIRCULATION

McDowall in the *J. Pharm. & Exp. Therap.*, May, 1925, contends that, even in therapeutic doses, alcohol reduces the venous pressure in man and may relieve the heart in this way. One can understand why, on purely physiologic grounds, chronic alcoholics are notoriously bad subjects in infectious conditions, especially pneumonia. The hearts of such individuals will be frequently subjected to periods of diminished venous filling in which it is called on to do very little work per beat, and as the heart, like any other organ, adapts itself to the amount of work it has to do, it will become gradually less efficient and less capable of dealing with an additional load such as occurs in an emergency like pneumonia. The special liability of chronic alcoholics who take little physical exercise to be subjects of cardiac failure is well known, and no doubt it is for a similar reason that the prognosis in pneumonia becomes increasingly worse as the patient gets older and his heart becomes less efficient. (*J. A. M. A.*)

GENTIAN-VIOLET IN EMPYEMA

Dr. Ralph H. Major, of Kansas City, Kans., has had a considerable experience in the treatment of empyema, the results of which he reports in the *Illinois M. J.*, for July, 1925.

His method of treatment consists in evacuating the cavity with a needle and then instilling 100 Cc. of an aqueous solution of gentian-violet, leaving it in the cavity. At first, he used diluted solutions (1 to 5000, to 1 to 1000), but, of late, he uses strengths of 1-500 to 1-250.

Fifty-seven patients have been treated in this manner, of whom 45 have cleared up without operation and 12 have been operated upon. Where operation became necessary, it seemed to be made simpler by the gentian-violet treatment. Cases treated early showed the best results. No untoward effects were noted.

Patients should be warned that the dye is very likely to appear in the sputum at some time during the treatment.

FAMILIAL HEMOPHILIA

A typical, hemophilic family is reported by Davidson and McQuarrie in the *Johns Hopkins Hosp. Bull.* for May, 1925, in which fourteen proved cases of hemophilia have occurred in eight generations. The hereditary transmission occurred in this family, according to the law of Nasse. No occurrence of the disease in females and no transmission through the males of the family has been observed. One typical case of sporadic hemophilia is described. The clinical picture and the blood abnormalities are identical in the sporadic type and in the hereditary type of the disease. The blood coagulation time and the prothrombin time in the cases of hemophilia were from twice to twenty-five times as great as the normal. The finding by Minot and Lee of a qualitative platelet deficiency without a diminution in the number of platelets has been confirmed. The bleeding time, the capillary resistance, the nature of the blood clot when finally formed, the amount of blood calcium and the number of blood platelets were at all times found to be normal in the cases of hemophilia studied. (*J. A. M. A.*)

SYPHILIS AND BISMUTH

The extensive work which has been done in the last few years in the treatment of syphilis with bismuth is well reviewed, with an extensive bibliography, by Dr. J. L. Grund, in the *Boston M. & S. J.* for Feb. 19, 1925.

In a disease so protean in its manifestations as syphilis, we need every possible method of attacking it, and bismuth is a valuable addition to our armamentarium.

Of course, the arsphenamines are not replaced by it, but these salts sometimes cause very unpleasant symptoms, as dermatitis, nitritoid crises and, possibly, jaundice, and must be replaced in such cases.

Milian places bismuth between the arsenicals and mercury as an antiluetic. If the therapeutic activity of the arsphenamines is represented by the figure 10, then bismuth is rated 7 and mercury 4.

Dr. Grund is convinced that bismuth far excells sulpharsphenamine in rendering the Wassermann reactions negative and suggests that it be given a thorough trial in those cases of cardiovascular syphilis where arsenicals are contraindicated.

New Books

KANAVEL: THE HAND

INFECTIONS OF THE HAND. *By Allen B. Kanavel, M.D. Fifth Edition, Thoroughly Revised. Illustrated. Philadelphia: Lea & Febiger.* 1925. *Price* $5.50.

Infections and injuries of the hand are among the commonest of surgical conditions and are usually seen first by the practitioner so that, if good functional results are to be obtained, it is necessary that he have a full understanding of what is necessary before treatment is begun.

The hand is one of the most complicated organs of the human body and a minute and detailed knowledge of its anatomy and functions, while necessary to its proper treatment, is deplorably uncommon.

Dr. Kanavel has treated his subject with commendable thoroughness, illustrating the anatomy with numerous cross-sections and other cuts and diagrams.

The most important part of the book, however, is that which deals with the accurate diagnosis and logical treatment of the various infections of the hand, wrist and forearm, and the insistence upon the fact that sound treatment depends, absolutely, upon a correct diagnosis.

In using the book, the surgeon should turn first to part two and read the chapters on Diagnosis in General, and General Principles of Treatment. These will guide him to the chapters that deal with the particular case in hand.

Detailed instructions are given for the use of such splints and other dressings as will best conserve the functions of the hand, and for the application of the proper physiotherapeutic procedures for the restoration of these functions when they have been partially or wholly lost. Illustrations are used freely where required.

The wide and general study of this volume by practitioners would result in the saving of many useful hands which in the absence of detailed knowledge on the part of the surgeon who treats them would be lost.

CRUMMER: HEART DISEASE

CLINICAL FEATURES OF HEART DISEASE. An Interpretation of the Mechanics of Diagnosis for Practitioners. *By LeRoy Crummer, M.D. Introduction by Emanuel Libman, M.D. New York: Paul B. Hoeber, Inc.* 1925. *Price* $3.00.

In these days of elaborate mechanical methods of diagnosis, there is a tendency toward a rather widespread feeling that no valid diagnosis is complete without their use. This seems to be especially true in connection with cardiac diagnosis, in spite of the facts that the Fathers of Medicine, and many practitioners who work far from the centers where electrocardiography and other mechanical methods are available, have made and are making accurate and reliable cardiac diagnoses by means of their trained senses and their experienced clinical judgment alone.

Dr. Crummer was impressed by the basic soundness of the rules laid down by the War Department in W.D., O.S.G. Circular No. 21, July 14, 1917, for the examination of recruits as to heart-soundness, and has used this circular as the basis of the present volume.

The emphasis, throughout, is laid upon the importance of an accurate and detailed clinical history of the patient's entire life; a thorough and painstaking physical examination; and, finally, a careful summing up of the results obtained by both these methods and the application of the expert and logical professional judgment in interpreting them.

Dr. Crummer devotes much time and space to a consideration of the logical interpretation of signs and symptoms and their relation to the patient's life and usefulness.

There are too few books of this sort now being published in this country, and when one is encountered it is almost like receiving personal instruction from a capable clinical teacher. No physician can afford to miss such an opportunity.

LEADBEATER: EVOLUTION UPWARD

THE MASTERS AND THE PATH. *By The Rt. Rev. C. W. Leadbeater. Chicago: The Theosophical Press,* 825 *Oakdale Ave.* 1925. *Price* $2.75.

The subject of evolution is coming in for much attention, and all men of scientific training recognize that the development of forms, from the lower to the higher, in regular and orderly progression, is one of the fundamental laws of nature.

Assuming that there is a Supreme Being —call It God, or what you will—and that man stands in some relation to this Being (assumption which, in the abstract, will be denied by few thinking men, today), it would be a violation of this fundamental law of evolution if every step of the ladder by which life has climbed from the ameba up to man were fully represented, and then a great leap was made from man to God, with no intermediate steps.

Bishop Leadbeater's book is a frank (surprisingly frank!) setting forth of the fact that the law is *not* thus violated—that every step of the pathway from man up to God is represented by beings who carry on a coordinated and selfconscious existence in the higher planes of consciousness, and have as definite work to do as we have.

We readily recognize the different stages of development which we see in human

beings—an African aborigine is scarcely on a par with Pasteur or an Edison—as well as all the stages of sub-human life. Why should we be startled at the idea of various stages in superhuman development? The Christian Scriptures allude to such Beings, allegorically, as "Angels and Archangels", or "Cherubim and Seraphim".

Those whom he speaks of as "Masters" are perfected men, who have completed their human evolution and now remain as the teachers and helpers of the rest of humanity, as a graduate of a college might remain with the institution as an instructor.

This volume discusses, in simple, matter-of-fact terms, the life and activities of the Lord Christ and the Lord Buddha, and illustrates, by diagrams, what is their relation to God and to us. It is very surprising but sounds logical.

The "Path" is an outline of the course of conduct and activities by which we, if we are willing to make the necessary effort and sacrifices, may arise, with a *comparatively* short time, into the regions of power and glory where these Great Ones function.

If we *are* pursuing our way, in this life, to some unexplored country on the "other side", this book reads like a guide-book to that country; and, in these days of intellectual and spiritual searching, and in the rush of unbelievable scientific discoveries, we are denying ourselves something worth while if we fail to give a hearing to those who purport to bring a message from realms which have not yet been explored.

DUNHAM: SOCIAL MEDICINE

AN APPROACH TO SOCIAL MEDICINE. *By Francis Lee Dunham, M. A., M. D. Baltimore: Williams & Wilkins Company.* 1925. *Price* $4.00.

A physician has two functions to fulfill in his community: that of a healer of the sick and that of a teacher of the people.

There is also a larger function which certain especially qualified men can perform: that of leaders of the nation and the race, guiding them into the paths of orderly progress and a sound and enduring peace.

The present volume is addressed to this last-named class and suggests the methods for approaching the study of the functioning of the individual in his environment.

The best way to give an idea of the author's style and point of view is to quote a few brief and pregnant passages from various parts of the book.

—

"The purpose of Social Medicine is to further the application of scientific methods of organization to man's social habits in order to determine their usual biological characteristics, to discover the sources, causes and effect of instability and to establish a sympathetic equilibrium between the organism's innate and acquired tendencies.

"Many individuals suffer from failure to control their appetites and feelings yet refuse to acknowledge themselves ill, while many more have little success in meeting the requirements of their communities although they never would abide segregation. And although defective social adjustments nearly always possess elements calling for medical advice and are sometimes due primarily to disease, immediate or remote, the causes of defective conduct can more often be traced to biological than to pathological sources, to the springs of character rather than to the lair of the microbe.

" 'The amateur social doctors', said Summer, 'are like the amateur physicians—they always begin with the question of *remedies*, and they go at this without any diagnosis or any knowledge of the anatomy of physiology of society.' To emphasize fundamental elements of social welfare must be the purpose of our approach to the organized field of the hygiene of conduct.

"Social Investigation employs the usual instruments of precision adapted in General Medicine to the accurate observation of structures and functions. The apparatus of the clinic and the laboratory thus contribute materially to our estimate of the personality.

"A device, utilized somewhat extensively by Social Medicine, yet as important as any other experimental instrument or critical method, is the record of the individual's life. This historical account, anecdotal, official and scientific, should be available for consultation in every case brought to the attention of social workers.

"The history of the individual is the record of his mode of responding to inborn appetites and feelings whose social value depends upon the completeness of their organization into character. Records of this nature are of definitely practical value.

"In like manner the economic value of an individual may be judged by submitting his conduct to the scrutiny of social criteria in order to analyze his personality and estimate his cultural qualifications. When such a course is followed, justice to the individual, utilization of his community worth, and his ethical happiness are more likely to be realized, and our knowledge of the quality of his surroundings leads us to predict the degree of adaptability to be expected. The term, Social Relativity, may be used to express the relation of capabilities to surroundings.

"The aim of Social Medicine—to improve human relations through better organization or control—counts among its foremost elements of analysis fundamental animal or biological tendencies ministering to nutrition, protection and reproduction, all responding involuntarily to physiological demands and satisfying propensities inherently selfish.

"Character is said to be balanced according to the degree of control its possessor develops over his behavior in meeting the standards characterizing his group. Completeness of this control measures to a great extent his social efficiency or conduct. Temperance in eating and drinking; sexual control according to the monogamous standards; 'honesty' and sympathy, are the usual assets of economically responsible people.

"Ability to grasp quickly what goes on about one, the special sensory faculties re-

sponding adequately; to be able to interpret these reactions; to associate remembered events; to analyze, judge and utilize creatively situations thus presented, is the specific developmental achievement of the human organism."

Definite details are given for the collection and study of medico-social data, and are illustrated by forms and diagrams and one completed specimen history, so that the interested student has a concrete basis on which to proceed.

This book is not recommended to the average practitioner, although its perusal could scarcely fail to make him a better-rounded man and a more valuable member of his community, but to those who have an insatiable curiosity as to the springs of human conduct and a longing to help forward the progress of the race.

ELECTRO-PHYSIOTHERAPY

LECTURES, CLINICS AND DISCUSSIONS ON ELECTRO-PHYSIOTHERAPY. *Held at Logan Square Masonic Temple, Chicago. October 20 to 24, 1924. Under the Auspices of H. G. Fischer & Co., Inc.*

The lectures, discussions and clinics presented at the Annual Physiotherapeutic Conventions, held under the auspices of H. G. Fischer & Co. offer a splendid opportunity for physicians to become familiar with what is going on in this fascinating field of research and therapeutics.

For those who are unable to attend the conventions, all the material presented is published in book form, and the present volume contains the transactions of the third of these conventions which was held in Chicago in October, 1924.

The book contains 110 articles, filling 740 pages, and probably gives the most up-to-date and practical presentation of the subject of physiotherapy that can be found between any two covers.

MATTHES: DIAGNOSIS

TEXTBOOK OF DIFFERENTIAL DIAGNOSIS OF INTERNAL MEDICINE. *By M. Matthes, M.D. Authorized Translation of the Fourth German Edition with Extensive Additions. By I. W. Held, M.D. and M. H. Gross, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co.* 1925. *Price* $12.00.

The fourth edition of Prof. N. Matthes' differential diagnosis of diseases of internal medicine compares favorably with any recent work of its kind. It is fortunate that a book of this character, which on account of its completeness and scope is of such great value, can be made available to a large number of practitioners by an English translation.

The subject is covered in twenty-two chapters comprising acute and chronic infectious diseases of the peritoneum, the respiratory tract, cardiovascular and renal system, the gastrointestinal tract, chronic bone and joint diseases and some forms of neuralgia. One chapter is devoted to the differential diagnosis of diseases of metabolism of endocrine origin. The usual plan of first emphasizing the subjective and objective symptoms of the particular disease in question, followed by a consideration of the differentiation of every other condition which may be confused with the former, even remotely so, is followed. Forty-six pages are devoted to the diagnosis of diseases of the peritoneum and the ileus. Every possible intraabdominal condition is covered as completely as one could expect; forty-five pages are devoted to the disturbances of the cardiovascular system, and more than a hundred to those of the intestinal tract. Roentgen-ray studies of the gastrointestinal and respiratory tracts and pneumoperitoneum are given full consideration. The author lays considerable stress on liver function tests.

The book is well illustrated and adequately indexed.

INTERNATIONAL MEDICAL ANNUAL

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioner's Index. *Forty-Third Year. New York: William Wood & Co.* 1925. *Price* $6.00.

The Medical Annual is too well known to require extended description. Its alphabetical arrangement of subjects facilitates easy reference, which is aided by an excellent index; the character of the contributors testifies to the authoritative nature of its contents; its timeliness gives physicians access to material which will not appear in textbooks for several years; and the excellent manner in which it is gotten up makes it an ornament to the library.

The present volume contains 548 pages, with 43 plates, in colors, and 87 illustrations in the text.

An indispensable addition to the library of any physician who desires to keep abreast of the progress of medical science.

MAYO CLINIC PAPERS

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION. *Edited by Mrs. M. H. Mellish. Vol. XVI.* 1924. *Philadelphia: W. B. Saunders Company.* 1925. *Price* $13.00.

The present volume is a complete reference record of all papers for the year 1924 from the Mayo Clinic and the Mayo Foundation, every such paper being published therein complete, abridged, abstracted, or by title. Such articles as do not seem to be of interest to general physicians or general surgeons, but to be of technical or other limited interest only to specialists in the various preclinical and limited clinical fields, are included in brief abstract or by reference only. These papers have been published in journals devoted to the several specialties. Readers having difficulty in obtaining access to the journals containing the original papers may be supplied, in some instances, with reprints of them by com-

munication with the Division of Publications of the Mayo Clinic.

The material is arranged by anatomical systems, as: Alimentary Tract; Urogenital Organs; Blood and Circulatory Organs; Ductless Glands; etc. The index is triple, showing contributors, bibliography and subjects.

The work of the Mayo Clinic and Foundation is too well known to require insistence upon the importance of their collected papers.

JELLETT: GYNECOLOGY

A PRACTICE OF GYNECOLOGY. *By Henry Jellett. Fifth Edition. Illustrated. Philadelphia: Lea & Febiger.* 1925. *Price* $8.50.

A modern textbook on the diseases of women by an author who seems to be well acquainted with his subject.

The volume is well gotten up and printed in readable type on excellent paper. There are 744 pages of text, fifteen splendid colored plates and 417 illustrations, a number of which are in colors. The index seems to be very satisfactory.

VEDDER: CHEMICAL WARFARE

MEDICAL ASPECT OF CHEMICAL WARFARE. *By Edward B. Vedder, Lieut. Colonel, M.C., U. S. A. With a Chapter on the Naval Medical Aspect of Chemical Warfare by Duncan C. Walton, Lieut. Commander, M.C. U. S. N. Illustrated. Baltimore: Williams & Wilkins Company.* 1925. *Price* $6.50.

LANDIS: OBSTETRICS

COMPEND OF OBSTETRICS: Especially Adapted to the Use of Medical Students and Physicians. *By H. G. Landis, A.M., M.D. Tenth Edition, Revised and Edited By Clifford B. Lull, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co.* 1925. *Price* $2.00.

SCHAMBERG: DISEASES OF THE SKIN

COMPEND OF DISEASES OF THE SKIN. *By Jay Frank Schamberg, A.B., M.D. Seventh Edition, Revised and Enlarged. Illustrated. Philadelphia: P. Blakiston & Co.* 1925. *Price* $2.00.

ROOSEVELT HOSPITAL: REPORT

MEDICAL AND SURGICAL REPORT OF THE ROOSEVELT HOSPITAL, NEW YORK. *Second Series* 1925, *Based on the Work of the Years* 1915-1924 *Inclusive. Illustrated. New York: Paul B. Hoeber.* 1925. *Price* $5.00.

ABDERHALDEN: BIOLOGISCHE ARBEITSMETHODEN

HANDBUCH DER BIOLOGISCHEN ARBEITSMETHODEN: Abt. IV. Angewandte Chemische und Physikalische Methoden: Teil 9, Heft 4, Methoden zur Quantitativen Bestimmung des Stoffwechsels des Gesamtorganismus von Organen und Zellen; Teil 10, Heft 4, Quantitative Bestimmung des Gasstoffwechsels; Teil 12, Heft 2, Gerichtliche Medizin. *Unter Mitarbeiten von* 500 *bedeutenden Fachmännern. Herausgegeben von Geh. Med.-Rat Prof. Dr. Emil Abderhalden. Berlin: Urban & Schwarzenberg.* 1924 und 1925.

BRUGSCH: GESAMT-MEDIZIN

ERGEBNISSE DER GESAMTEN MEDIZIN. *Unter Mitwirkung hervorragender Fachgelehrten. Herausgegeben von Prof. Dr. Th. Brugsch, Oberarzt der II. Med. Klinik der Charité in Berlin. Berlin: Urban & Schwarzenberg.* 1925.

VIERORDT: PERKUSSION UND AUSKULTATION

KURZER ABRISS DER PERKUSSION UND AUSKULTATION. *Von Dr. Hermann Vierordt, Professor der Medizin an der Universität Tübingen. Neunzehnte und Zwanzigste vielfach verbesserte Auflage. Berlin: Urban & Schwarzenberg.* 1924.

MARLE: KLINISCHE MEDIZIN

EINFUEHRUNG IN DIE KLINISCHE MEDIZIN. Eine kurze Darstellung ihrer Grundbegriffe. *Von Walter Marle. 2. Band: Innere Medizin—Neurologie—Psychiatrie. Mit* 220 *Abbildungen im Text. Berlin: Urban & Schwarzenberg.* 1925. *Price, Cloth* 7.20 *Marks.*

This book, the second of the series, covers the subjects of internal medicine, neurology and psychiatry. It is well written and illustrated.

Medical News

A. J. Ochsner

THE country in general, and Chicago and the medical profession in particular, sustained an irreparable loss when Dr. Albert John Ochsner, internationally known surgeon, passed away on the morning of July 24, 1925, following a four-days' illness with angina pectoris.

Doctor Ochsner was born in Baraboo, Wisc., on April 3, 1858, and was graduated from the University of Wisconsin in 1884. Following his graduation from the University, he came to Chicago and studied at Rush Medical College, taking his degree as Doctor of Medicine in 1886. He subsequently took degrees both in Vienna and in Berlin in 1887 and 1888.

On his thirtieth birthday, Doctor Ochsner, who had been practicing medicine in Chicago for two years, married Miss Marion H. Mitchell.

In 1896 he became the chief surgeon of the Augustana and St. Mary's hospitals which position he retained until his death, and, in 1900, he was made professor of clinical surgery at the University of Illinois. He was the first president of the Clinical Congress of the Surgeons of North America. In 1923, he was president of the American College of Surgeons, and last year at the national session of the American Surgical Association of Baltimore he was elected president of that society. He was a member of the American Medical Association; Chicago Medical Society; Chicago Pathological Society, and the Chicago Surgical Society.

Many honors were conferred upon him by institutions and learned bodies in Europe and among these professional affiliations were membership in the Royal College of Surgeons of Ireland and the Royal Microscopical Society of London.

He was a member of the executive commitee which raised a million dollars for the new addition to the Augustana hospital, in which work his wife aided him as chairman of the women's committee.

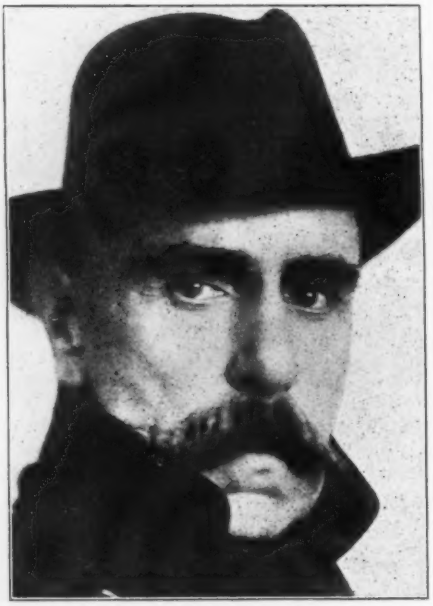
During the war, Doctor Ochsner was commissioned as Major in the Medical Department, with Base Hospital Unit No. 11, which was organized in Chicago by the Red Cross and performed numerous and important services.

In addition to being a wide contributor to the current literature of his profession, the doctor was the author of a "Handbook on Appendicitis" and of a monograph on "Organization, Management and Construction of Hospitals" and another on "Surgery of the Thyroid and Parathyroid Glands".

Doctor Ochsner will long be remembered as an illuminating and helpful teacher by the hundreds of students who had the privilege of sitting under his instruction; by his professional confreres in Chicago and other parts of the country as an erudite and expert surgeon and a thoroughly capable all-around medical man; and by the innumerable patients who have been benefited by his

skill as the agency which restored them or their loved ones to health and happiness.

His charming personality made him a welcome addition to any professional or social group and his delightful conversation and sound professional comments will be deeply missed in every gathering of the various medical societies of which he was a member.



Copyright: Keystone View Co.

MALARIA AGAINST PARALYSIS

Prof. Wagner-Jauregg, a famous Viennese physician, made a startling lecture recently regarding his experiments since 1917 in curing paralysis with malaria. In vaccinating malaria microbes paralysis was cured in several people.

EDUCATION IN BREAST-FEEDING

The Chicago Medical Society and the Chicago Department of Health are cooperating to spread the knowledge of how the milk supply of mothers may be maintained for the breast-feeding of their infants.

All Chicago physicians are being requested to call the Health Department by telephone and report every birth, giving name and address of the parents. A nurse will then be sent to work *with and under the direction of the physician* in instructing the mothers how to establish and keep up the flow of breast milk, care for the breasts, and other matters, when necessary.

This is a valuable and much needed educational enterprise.

SOUTH CAROLINA HAS EFFECTIVE SYSTEM OF DISEASE REPORTING

Dr. James A. Hayne, State Health Officer of South Carolina and Collaborating Epidemiologist of the United States Public Health Service, has instituted a new and decidedly more effective system of disease reporting by physicians. Each week a card is mailed to physicians for the report of the number of cases of diphtheria, gonorrhea, syphilis, malaria, smallpox, tuberculosis and certain other diseases. The greater effectiveness of this system of reporting is shown by the fact that, in the first month of its operation, 734 cases of syphilis were reported as against an average of 245 cases for each of the preceding ten months, or three times as many cases as were reported formerly. There is a still higher rate of increase in the number of reported cases of gonorrhea. Over seven times as many cases of this disease were reported under the new system as were reported formerly.

MEDICAL TRAINING CAMP

The training camp for medical reserve officers that closed at Fort Snelling, Minn., July 18, 1925, was the most successful camp of instruction since the close of the war. 360 medical officers took the course, including the officer personnel of five medical regiments. Twelve states were represented. 1500 university reserve officer students were in the camp. Col. Jere B. Clayton, M.C., Chief Surgeon, 7th Corps Area, was commandant. A medical reserve training association was organized.

MEDICAL SOCIETY OF THE MISSOURI VALLEY

The Medical Society of the Missouri Valley will hold its annual meeting at St. Joseph, Mo., from September 30th to October 2nd, inclusive.

The sessions will be held at the Hotel Ribidoux. Diagnostic clinics will occupy the morning hours, while a series of sympo-

sia, contributed by the various state universities, will fill the afternoons.

The preliminary program is very interesting and the meeting should prove profitable to all who attend.

For further particulars, address Dr. Chas. Wood Fassett, 115 E. 31st St., Kansas City, Mo.

Copyright: Keystone View Co.

JOINS SAVANTS IN DEFENSE OF EVOLUTION

Mme. Curie, famous codiscoverer of radium, is one of the big group of French savants who have taken up arms in defense of the cause of Evolution, due to the Dayton trial of John Scopes. They say no one has the right to forbid the free discussion of ideas which have contributed to the formation of contemporary scientific thought and is one of the most valuable acquisitions to biology of the 19th century.

UNJUST TAXATION OF PHYSICIANS

There is little or no doubt in the minds of those who have considered the subject that the war tax of $3.00 under the Harrison Narcotic Law and the taxation of the sums spent by physicians in attending medical society meetings and postgraduate courses are unjust taxes. Those who desire to take a hand in *doing something about it* will find all necessary data in the *A. M. A. Bulletin* for June, 1925.

THE STEARNS FELLOWSHIP

Frederick Stearns & Company have founded, at the University of Michigan, a Memorial Fellowship in Medicine, in honor of the late Frederick Kimball Stearns.

While the medical fellowship is to be used at the direction of the University medical authorities, the work during the coming year will be devoted to researches on Insulin and Insulin therapy.

Copyright: Underwood & Underwood.

CANADIAN PHYSICIAN RETURNS FROM CHINA FOR A VISIT

Dr. John McWillie left Toronto, Canada, thirty-three years ago for the Far East as a mission physician. His many years of close association with the orientals has given him a remarkable insight into their mode of thought. He is now in private practice in Hankow, China, and says that the present Chinese uprising is the most serious since the Boxer affair. He lays the blame to student groups incited directly by Russian Bolsheviks. The student groups have Russian officers for leaders. Dr. McWillie has a son, John, Jr., at Columbia.

X-RAY PHOTOGRAPHS SENT BY WIRE

In the *Journal of Radiology*, for June, 1925, there is a report of a case in which an x-ray negative of the bones of the hand was sent by wire, from New York to Chicago, in 7 minutes, without loss of detail.

This opens up startling possibilities for obtaining, promptly, the opinions of experts in regard to radiographic findings.

FAKE CURES

The Metropolitan Life Insurance Company, of New York, is using a very interesting advertisement describing fake "cures", in 22 of the leading popular magazines. This is good stuff and you would do well to call the attention of your patients to some of these ads.

PELLAGRA IN KOREA

Dr. R. M. Wilson, of Kwangju, Korea, reports that 8 cases of pellagra have appeared in the leper colony at that place and that, so far as he can ascertain, this is the first report of pellagra in Korea or in the Orient.

Dr. Wilson feels that, in some respects, pellagra is worse than leprosy.

AMERICAN ELECTROTHERAPEUTIC ASSOCIATION

The 35th Annual Meeting of the American Electrotherapeutic Association will be held at the Drake Hotel, Chicago, Ill., September 15th to 18th, inclusive. All legally licensed physicians are welcome to attend. Fellows of the Association pay annual dues of $10.00. For full particulars address Dr. Richard Kovacs, Secretary, 223 East 68th St., New York City.

DIATHERMY OUTFIT AND INSTRUMENTS

Owing to the untimely death of Dr. Lawrence Roblee, of Chicago, his professional equipment, consisting of a Fischer diathermy outfit, Wappler cystoscopic set, surgical instruments, books and complete office equipment are for sale.

If interested address Mrs. Lawrence Roblee, 1060 Wilson Avenue, Chicago.

U. S. CIVIL SERVICE EXAMINATIONS

Applications will be received until Dec. 30, 1925, for examination for the appointment of Junior, Assistant and Associate Medical Officers, Medical Officers and Senior Medical Officers. Branches open include the Indian Service, Public Health Service, Coast and Geodetic Survey, Panama Canal and Veterans' Bureaus. Salaries range from $1,860 to $6,000.

—

Receipt of applications for chief social service worker (psychiatric) will close September 29. The examination is to fill a vacancy in the Veterans' Bureau, Washington, D. C., and vacancies in positions requiring similar qualifications.

The entrance salary is $3,000 a year. Advancement in pay may be made without change in assignment up to $3,600 a year. Promotion to higher grades may be made in accordance with the civil service rules.

The duties, under general direction, are to supervise and coordinate the activities of the psychiatric social workers in the regional offices of the United States Veterans' Bureau, and to perform related duties.

Competitors will not be required to report for examination at any place, but will be rated on their education, training and experience, and a thesis or publications to be filed with the application.

—

Receipt of applications for competitive examination for appointment as pharmacist, at a salary of $2,100, will close September 12, 1925.

For full information address the United States Civil Service Commission, Washington, D. C.

ANNOUNCEMENT

Surgeon General H. S. Cummings, U. S. P.H.S., desires to announce that the "National Health Service" which advertises and sells a "Health Book", has no connection whatever with the Public Health Service, and insofar as can be learned, with no branch of the Government.

It should be definitely understood that the Public Health Service does not endorse this self-styled "National Health Service" or its books.

This announcement seems necessary in fairness to the general public.

Send for This Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., CLINICAL MEDICINE will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering, our readers may use the numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

U- 22 Biological Products for Human Use —With Indications for Use, Dosage, Price List, etc. Gilliland Laboratories.

U- 31 The Romance of Digitalis — The Story of Its Discovery. 12-page Booklet. Hoffman-LaRoche Chemical Works.

U- 36 In the Vein. 32-page Magazine of Intravenous Therapy. Intravenous Products Co. of America.

U- 41 Specific Urethritis. 16-page booklet. Riedel & Co.

U- 49 "Vichy" Natural Mineral Waters. Henry E. Gourd.

U- 58 A Symposium on Yeast. 24-page booklet. The Fleischmann Co.

U- 77 The Source, Nature and Amount of the Nutritive Elements in Mellin's Food. Mellin's Food Co.

U- 84 Storm Binder and Abdominal Supporter. 4-page folder. Dr. Katherine L. Storm.

U- 85 Horlick's Malted Milk—Physician's Uses. 48-page booklet. Horlick's Malted Milk Co.

U- 134 Chinosol—Non-Poisonous Antiseptic. 32-page booklet. Parmele Pharmacal Co.

U-140 Modified Milk combined with Milk of Magnesia. Sharp & Dohme.

U-181 Passiflora—Tranquilizing but not narcotic. 4-page folder. Carroll Dunham Smith Pharmacal Co.

U-194 Ninth Edition of Electro Surgical Instrument Co. catalogue. 80 pages.

U-223 Adrenalin in Medicine. 24-page booklet. Parke, Davis & Co.

U-224 Dependable Pharmaceutical Products. 208-page price list. Zemmer Co.

U-234 In Respiratory Troubles. 4-page folder. Pitman-Moore Co.

U-235 Constipation. Its Rational and Physiological Treatment. 4-page folder. Wm. R. Warner & Co.

U-236 The Glycerophosphates. 8-page folder. Smith, Kline & French Co.

U-238 Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co.

U-242 The Endermic Treatment of Febrile Conditions. 24-page booklet. Pneumo-Phthysine Chemical Co.

U-243 Useful Information for the Nurse. 24-page booklet. Chas H. Phillips Chemical Co.

U-250 Calcreose. 8-page folder. Maltbie Chemical Co.

U-252 Endocrine Therapy, by Carl S. Oakman, M.D.

U-255 Lunosol, by Herman Hille, Ph.D. 16-page booklet. Hille Laboratories.

U-268 Supporters, Trusses and Elastic Bandages. 16-page booklet. Hall & Cary Weaving & Belting Co.

U-295 Taurocol Tablets. 4-page folder. Paul Plessner Co.

U-341 Collodaurum. Ideal Skin-Suture Material Co.

U-376 Forma-Chloride. 8-page folder. Drug Products Co.

U-378 The Heart and its Disorders. 36-page booklet. Fellows Medical Mfg. Co., Inc.

U-428 V-E-M. Schoonmaker Laboratories, Inc.

U-432 Health, Growth and Happiness for Boys and Girls. 24-page booklet. Ralston Purina Co.

U-433 Home Treatment of Tuberculosis. 32-page reprint of articles by Dr. Beverly Robinson and others. Charles Killgore.

U-439 Naftalan. 10-page booklet. Ft. Dearborn Drug & Chemical Co.

U-446 Apioline. E. Fougera & Co.

U-449 Important about Mineral Oil. Hillside Chemical Co., Inc.

U-450 The Last Word in Air Cushion Pessaries. Huston Bros. Co.

U-452 Ichthyol. Merck & Co.

U-456 The World's Most Wonderful Canal. 16-page booklet. Reed & Carnrick.

U-470 The Rational Treatment of Diabetes by A. H. Werner, M.D. 6-page booklet. Solosan Co., Inc.

U-480 Cream of Nujol with Agar. Standard Oil Co.

U-520 Antistreptococcic Serum Polyvalent. Bulletin No. 9. 16-page booklet. H. K. Mulford Co.

U-521 Insulin. Bulletin No. 24. 24-page booklet. H. K. Mulford Co.

U-522 Surgical Instruments, Equipment and Supplies. Bulletin No. 122. A. S. Aloe Co.

U-523 Dietary Sources of Calcium and Phosphorus. 8-page booklet. E. L. Patch Co.

U-524 Cod Liver Oil Yesterday and Today. E. L. Patch Co.

U-525 Quartz and Deep Therapy Lamp Series. Bulletin No. 35. 24-page booklet. Burdick Cabinet Co.

U-526 Progressive Medicine, August, 1925. 16-page booklet. Drug Products Co.

U-527 Scurvy VIII. Factors Affecting the Anti-Scorbutic Value of Foods. Alfred F. Hess, M.D. and Lester J. Unger, M.D., New York. 8-page booklet. Dry Milk Co.

U-528 Diathermic Treatment of Malignancies by Grant E. Ward, M.D., Baltimore, Md. H. G. Fischer Co.

U-529 Reprint of Lecture on Electrocoagulation by Mel R. Waggoner, M.D. 16-page booklet. H. G. Fischer Co.

U-530 Bismuthoidol in the Treatment of Syphilis. E. Fougera & Co.

U-531 Quartz Light and Tuberculosis. 16-page booklet. Hanovia Chem. & Mfg. Co.

U-532 Menstrual Irregularities, by Henry R. Harrower, M.D. 16-page booklet. Harrower Laboratory.

U-533 The Electron, August, 1925. McIntosh Electrical Corp.

U-534 Mellin's Food for the Adult. 28-page booklet. Mellin's Food Co.

U-535 Tissue Fibrinogen in the Treatment of Hemorrhage. C. A. Mills, Ph.D., M.D. Cincinnati, Ohio. Wm. S. Merrell & Co.